## DOCTORAL THESIS

# Pre- and Perinatal Parenting Education for the 21st Century: Biopsychosocial factors that impact thriving of the mother, father, and baby.

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# Pre- and Perinatal Parenting Education for the 21st Century: Biopsychosocial factors that impact thriving of the mother, father, and baby

by

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**Abstract**

There has been a long history of provision of pre- and perinatal (PPN) education to mothers. Whilst more recently programs have included fathers, the literature suggested current offerings may not reflect paternal needs as they transition to parenthood in the 21st century. Due to inconsistencies in both research methodologies and subsequent study findings, understanding what constituted best practice for both mothers and fathers remained unclear. This dissertation examined factors perceived to be important considerations when designing, developing, and delivering PPN parenting programs. Exploratory self-report questionnaires and Delphi methodology across four studies were utilised. The purpose of this research was to expand on the existing literature as well as offer recommendations for future PPN parenting programs. More specifically, the current research aimed to provide recommendations regarding content and logistical factors that may lead to positive influences on the emotional, mental, physical, and relational wellbeing and thriving of mothers, fathers, and babies during a pregnancy and beyond.

In Studies 1 and 2, 54 existing mothers and seven fathers (*N*=61) who had previously attended PPN parenting programs completed an online questionnaire that examined program content strengths, gaps, and limitations. An outcome based on Braun and Clarke's (2006) thematic analysis process, was that two important topic areas were revealed to be important when assessing PPN parenting programs. They were *support during pregnancy* and *mindfulness* in the context of *the power of a parents' influence on a prenate*. These were discussed separately in Studies 1 and 2.

Consistent with the literature, results from Study 1 revealed that PPN parenting programs focussed on generic practical skills, and fathers reported feeling under-supported during the time of their partner's pregnancy. Fear, negative emotions, and lack of support were the most commonly reported causes of stress for expecting parents during the time of

pregnancy. Whilst some research advocated that existing programs mitigated these concerns, the current research did not concur. A wide range of topics were identified as being essential content in PPN parenting programs. Based on these, questions and items were formulated for consensus rating in parent and birth professional Delphi methodology studies (Studies 3 and 4).

Study 2's findings were consistent with the literature on PPN psychology, mindfulness, and neuroscience, purporting that parent thoughts, emotions, beliefs, moods, as well as quality of partner relationship during the pregnancy, may influence a prenate. The study highlighted the need to understand what mindfulness-based knowledge, skills, and tools expecting parents could be educated on to enable heathy pregnancy, birth, couple relationship, and transition to parenthood. This was explored in Studies 3 and 4.

Studies 3 and 4 constituted Delphi methodology expert consensus studies, where parent (Study 3, *N*=23 after three rounds) and birth professional (Study 4, *N*=20 after three rounds) panels completed online questionnaires. Each round examined nine literature-derived factors deemed to be important when considering designing, developing, and delivering effective PPN parenting programs. Collectively, the expert panellists generated 209 recommendations for inclusion in future PPN parenting programs across the nine factors measured. Results revealed recommendations that were unique to each expert panel. Many were also consistent with existing literature, as well as across the two Delphi groups. Most notable were items relating to content, barriers to fathers' attendance, and groups of parents who may benefit from attending PPN parenting programs. Consistent with the literature, clarity was not achieved for most appropriate timing and length of programs. Due to the volume and diversity of recommendations, seven suggestions for practical and effective execution of design, development, and delivery of future PPN parenting programs were identified.

The findings from across the four studies added to the literature in PPN psychology by highlighting what PPN parenting education for the 21st century may need to include to be considered effective for mothers, fathers, and babies to thrive. More than 90 content suggestions spanning the times of pregnancy, labour and birth, and post birth were offered. Examples included focus on emerging fields that discuss consciousness of a prenate, epigenetics, conscious parenting, mindfulness, and neuroscience; ensure sessions focus on being experiential, interactive and that utilise a multimedia environment; have core and optional modules, along with at-home practice time; facilitators to be from diverse birth professional backgrounds, and to be judgement free. Developing a range of PPN parenting programs, as well as measuring effectiveness through pre and post-test randomised clinical trials utilising large sample sizes and control groups, was recommended. Outcomes may result in sustainable prenatal care, positive parenting post birth, decreased maternal stress, anxiety and depression, needs-based inclusion of expecting fathers, and a positive transition for couples into parenthood.

*Keywords*: Pre- and perinatal psychology, pre- and perinatal parenting education, pre- and perinatal parenting programs, antenatal, pregnancy, parenting, mindfulness, birth professionals, Delphi.

**Declaration of Originality**

This dissertation is submitted to Bond University in fulfilment of the requirements of the degree of Doctor of Philosophy.

This dissertation represents my own original work towards this research degree and contains no material that has previously been submitted for a degree or diploma at this University, or any other institution, except where due acknowledgement is made.

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Date: 15 January 2018

## Research Outputs and Publications during Candidature

### Peer-Reviewed Publications

McKee, C., Stapleton, P., & Pidgeon, A. (2017). Support during pregnancy as an influencing factor on the transition to parenthood. *Journal of Prenatal and Perinatal Psychology and Health, 32*(2), 99-127. Retrieved from https://birthpsychology.com/journals/support-during-pregnancy-influencing-factor-transition-parenthood-christine-mckee-peta

McKee, C. L., Stapleton, P. B., & Pidgeon, A. M. (2018). Mindfulness: The power of a parent's intentional influence on a prenate. *The International Journal of Healing and Caring, 17*(1), 1-23. Retrieved from http://www.ijhc.org/2017/12/mindfulness-the-power-of-a-parents-intentional-influence-on-a-prenate/

### Peer-Reviewed Publications under Review

McKee, C., Stapleton, P., & Pidgeon, A. (2017, under review). History of pre- and perinatal parenting education: A literature review. *Journal of Prenatal and Perinatal Psychology and Health*.

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### Conference Proceedings

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## Ethics Declaration

The research associated with this dissertation received ethics approval from the Bond University Human Research Ethics Committee (BUHREC). Ethics application numbers for the four studies that made up this PhD project were:

- Studies 1 and 2—15474 (Appendix A)
- Study 3—15839 (Appendix D)
- Study 4—15851 (Appendix M)

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## Abbreviations

| | |
|---|---|
| Australian Institute of Health and Welfare | AIHW |
| Becoming a Parent program | BAP |
| Bond University Human Research Ethics Committee | BUHREC |
| Bringing Baby Home | BBH |
| Child Study Association | CSA |
| Cognitive Behavioural Therapy | CBT |
| Coping and Anxiety through Living Mindfully | CALM |
| Couple Care for Parents | CCP |
| Couple Psychoeducation | CP |
| Couple Relationship Education | CRE |
| Dopamine Receptor D4 | DRD4 |
| Edinburgh Postnatal Depression Scale | EPDS |
| Emotion Focussed Therapy | EFT |
| Hospital Anxiety and Depression Scale | HADS |
| Hypothalamic Pituitary Adrenal | HPA |
| Intention Attention Attitude | IAA |
| Marriage and Family Therapist | MFT |
| Mindfulness-Based Childbirth Education program | MBCE |
| Mindfulness-Based Childbirth and Parenting | MBCP |
| Mindfulness-Based Cognitive Therapy | MBCT |
| Mindfulness-Based Stress Reduction | MBSR |
| Multidisciplinary Program for Childbirth and Motherhood Preparation | MPCMP |
| New Zealand | NZ |

| | |
|---|---|
| Nurse Family Partnership | NFP |
| Northwest Center for Public Health Practice | NWCPHP |
| Obstetrician/Gynaecologist | OB/GYN |
| Planned and wanted | Pl_wa |
| Pre- and Perinatal | PPN |
| Registered Nurse | RN |
| Social Learning Theory | SLT |
| Standard Deviation | SD |
| United Kingdom | UK |
| United States of America | USA |
| Unplanned and wanted | Un_wa |
| World Health Organisation | WHO |

# Chapter 1: Introduction

## Preface

The pre- and perinatal (PPN) psychology period can be defined as the time of exploration of the intellectual, mental, physiological, and emotional development of prenates, from conception to three-months post birth, known as the fourth trimester (Hruby & Fedor-Freybergh, 2013; Ward, 2004). More developmental milestones occur during the nine months of gestation than at any other time throughout the course of the lifespan (Chamberlain, 2013), and a safe, loving, and nurturing womb has been found to provide an environment where a prenate can reach optimal development (Chamberlain, 2013; Nathanielsz, 1999; Weinstein, 2016).

A wide array of prenates' growth factors exists that extend beyond the embryological and physiological processes during gestation. Examples include bonding and attachment, cognitive development (Cabrera, Shannon, & Tamis-LeMonda, 2007b; Chamberlain, 2013; Feinberg, Roetter, Jones, Paul, & Kan, 2015), emotional development and self-regulation (Blasco, 2003; Korja, Nolvi, Grant, & McMahon, 2017; Roggman, Boyce, Cook, Christiansen, & Jones, 2004). One key component to support and optimise a prenate's growth in these areas is a pregnant mother and the baby's father participating in a PPN parenting program. This can lead to a range of positive outcomes such as improved secure bonding and attachment (Michaud, 2012; Raikes, Summers, & Roggman, 2005; Young, 2013), enhanced engagement in prenatal care, positive parenting post birth, decreased maternal stress, and increased levels of emotional and social support (Abu-Saad & Fraser, 2010; Cox & Phelan, 2008).

PPN parenting education for expecting mothers (e.g., Gruber, Cupito, & Dobson, 2013; Mortensen, Torsheim, Melkevik, & Thuen, 2012) has been available for at least 800 years (Polomeno, 2009). However, more recently, research has investigated the importance of

fathers' influence both on pregnant mothers and babies (e.g., Alio, Mbah, Grunsten, & Salihu, 2011; Brown, Mangelsdorf, & Neff, 2012; Somers-Smith, 1999). As a result, PPN parenting programs have started to target fathers (e.g., Tohotoa et al., 2012), and couples (e.g., Edvardsson et al., 2011; Halford & Petch, 2010; Johansson, Landahl, & Adolfsson, 2011; Pinquart & Teubert, 2010; Trillinsgaard, Baucom, Heyman, & Elklit, 2012).

A comprehensive literature review was completed for the current dissertation. Topics examined were: (a) the history of PPN psychology and related theories; (b) PPN parenting programs that have targeted mothers, fathers, and couples; (c) the importance of fathers; (d) support for mothers during pregnancy; (e) factors that influence prenates during pregnancy and beyond; (f) mindfulness throughout a pregnancy; and (g) adult education in general, as well as in the context of PPN parenting programs.

One overarching hypothesis explored in the current dissertation program, was that the provision of needs-based PPN parenting programs may assist in mitigating five factors that have been shown to reduce optimal growth of a prenate.

1. Maternal anxiety and depression, as evidenced by reduction in fetal growth and fetal brain development (Feinberg et al., 2015; Glover & Sutton, 2012), low birth weight of babies, premature delivery, infant mortality (Coley & Nichols, 2016; Eastwood et al., 2017; Pawlby, Hay, Sharp, Waters, & Pariante, 2011), and impaired bonding and attachment between mother and baby (Field, Diego, & Hernandez-Reif, 2010);
2. Paternal anxiety, which has been shown to negatively impact father-baby bonding (Bögels & Phares, 2008; Tohotoa et al., 2012);
3. Life stress experienced during a pregnancy, which is associated with low birth weight babies (Joyce, 1990), and reduced attachment by mothers post birth (Roussounis, Hubley, & Dear, 1993);

4. Maladaptive coping strategies in response to stress (George, Luz, De Tychey, Thilly, & Spitz, 2013), such as avoidance and aggression (Huizink, Robles de Medina, Mulder, Visser, & Buitelaar, 2002b); and
5. Negative relationship between the expecting couple (Halford, Petch, & Creedy, 2010).

The literature review conducted revealed that evidence for the efficacy of quality PPN parenting programs has advanced across the years. Of note was that the content of programs has now been embedded in empirically supported theory (e.g., Carmody & Baer, 2009; Collins & Fetsch, 2012; Vieten & Astin, 2008). Specifically, Behaviourism (Tanner & Tanner, 1975), Bonding and Attachment Theory (e.g., Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969), Developmental Theory (Ponzetti, 2016), and Mindfulness-Based Theory (Atzil, Hendler, & Feldman, 2013; Kabat-Zinn, 1990; Siegel, 2011), have all been proposed as foundations to PPN parenting programs.

Whilst not widespread, some studies exploring PPN parenting programs have utilised methodologies that included the use of randomised control trials (e.g., Robling et al., 2016; Tohotoa et al., 2012), and large sample sizes (e.g., Hussaini, Holley, & Ritenour, 2011; Robling et al., 2016). Both of these approaches lend themselves to replication and enhanced validity of findings related to outcomes, such as factors that may positively and negatively influence prenates' growth.

Despite these advancements, there were consistent limitations outlined in the literature which related to both research methodologies and findings. Each may have contributed to the absence in gold standard PPN parenting education and related programs. Based on these limitations, the rationale for the current research project was developed, and is detailed later in this chapter.

There were three consistent limitations that related to methodological practices. Firstly, the PPN psychology field has largely drawn conclusions relating to the impact of in-utero experiences on lifespan development, by using subjective techniques with adults. Examples included hypnosis-induced age-regression analysis (Cheek, 1986; Lake, 1981), rebirthing methods (Ray & Orr, 1983), and primal therapy which involves a participant reliving prenatal trauma experiences (Janov, 1983). Lack of control groups being included when PPN parenting programs were trialled using mothers only (e.g., Baer, 2003; Consonni et al., 2010; Hussaini et al., 2011; Panthuraamphorn, 1998), fathers only (e.g., Plantin, Olukoya, & Ny, 2011; Sahip & Turan, 2007), and couples (e.g., Schultz, Cowan, & Cowan, 2006) was common. In the current research project, the most appropriate target groups to attend future PPN parenting programs were identified, using Delphi methodology with expert panels of parents (Study 3) and birth professionals (Study 4).

Secondly, the use of small sample sizes (e.g., Baer, 2003; Panthuraamphorn, 1998) may have reduced generalisability of the reported research outcomes, and minimised ability to confidently support the reliability and validity of findings. Thirdly, longitudinal follow-up of sustainability of results measured was lacking across studies (e.g., Petch & Halford, 2008). Every effort was made during the recruitment process across the four studies of the current research to optimise sample sizes. This was to ensure appropriateness for both effective statistical analysis and generalisability of results. As a pre and post-test design was not appropriate for the current research, longitudinal follow-up considerations were not required.

As a result of the literature review, a range of factors that directly related to relevance and effectiveness of existing PPN parenting program study findings remained unclear. Each of the factors were investigated across the four studies in the current research, in order to gain clarity, and were: (a) content (Adamsons, 2013; Dunneram & Jeewon, 2015; Feinberg et al., 2015; Landy, Jack, Wahoush, Sheehan, & MacMillan, 2012); (b) timing of program delivery,

both start (e.g., Trillinsgaard et al., 2012) and end times (e.g., Godin et al., 2015; Jongen, McCalman, Bainvridge, & Tsey, 2014); (c) consumer group focus (e.g., Davis, Vyankandondera, Luchters, Simon, & Holmes, 2016; Godin et al., 2015; Hollins Martin & Robb, 2013; Landy et al., 2012; Renzaho & Oldroyd, 2014; Robling et al., 2016; Tohotoa et al., 2012); (d) extent of father inclusion in PPN parenting programs in general (e.g., Davis et al., 2016; Deslauriers, Devault, Groulx, & Sevigny, 2012; Humphries & Nolan, 2015); (e) content included that meets the needs of modern-day fathers (e.g., Billingham, 2011; Davis et al., 2016); (f) length of programs, each session (e.g., Carmody & Baer, 2009; Feinberg et al., 2015; Jaddoe, 2009) and overall program (e.g., Consonni et al., 2010; Sahip & Turan, 2007); (g) methods of program delivery (e.g., Arcus, 1995; Ayiasi et al., 2013; Billingham, 2011; Gazmararian et al., 2014); (h) location of program delivery (e.g., Brixval et al., 2016; Dunneram & Jeewon, 2015; Edvardsson et al., 2011; Ferguson & Vanderpool, 2013; Glover & Sutton, 2012); and (i) who is best qualified to deliver programs (e.g., Deslauriers et al., 2012; Dunneram & Jeewon, 2015; Feinberg et al., 2015; Jongen et al., 2014).

**Overview of the Current Studies**

The aim of the four studies conducted was to address the mixed ideology, lack of consistency, and void in best practice recommendations identified in the literature review. The findings from the four studies collectively then informed recommendations for the development of future PPN parenting programs. The recommendations included were intended to positively influence the emotional, mental, relational, and physical wellbeing and thriving of mothers, fathers, and babies. Four areas of focus were of primary interest. The first focus was to explore the typical stressors experienced by both mothers and fathers during the PPN time-frames. It was thought that data identified would assist in understanding what parents perceived to be useful and effective solution-oriented strategies, which could then be included in PPN parenting programs. The second was to gain knowledge of perceived

strengths, gaps, and limitations relating to current PPN parenting programs, to then inform content and design of future programs. The third aim was to understand what factors were perceived by existing parents and birth professionals to influence the development of prenates, from the time of conception to the fourth trimester. The fourth area of importance and focus was to determine effective content and logistical factors for inclusion in future PPN parenting programs.

Each of the four studies completed sought to meet the aforementioned purpose and goals, both individually and collectively, as well as extend the existing literature as follows.

1. Utilising empirically validated methodological designs for data collection that informed recommendations and expanded rigour in research under the PPN psychology banner. Specifically, Braun and Clarke's (2006) Thematic Analysis process was utilised in Studies 1 and 2. Delphi methodology was used in Studies 3 and 4;
2. Examining how PPN parenting programs could meet the needs of men who were transitioning to becoming fathers. Existing fathers were specifically targeted when recruiting participants for Studies 1, 2, and 3;
3. Exploring parents' and birth professionals' perceptions of what may lead to effective PPN parenting programs for the 21st century, to potentially mitigate polarised and conflicting views highlighted in the literature;
4. Sharing up-to-date recommendations to enhance the accuracy of design, development, and delivery of future PPN parenting programs; and
5. Collating recommendations obtained from across the four studies, a range of PPN parenting programs could be developed for different parent cohort groups. Each program could then be clinically tested using sound methodological practices

including randomised samples, large sample sizes, and control groups; elements which have been lacking in many previous studies in the PPN psychology field.

**Overview of the Dissertation Chapters**

A series of literature reviews were conducted to build the rationale behind the purpose, goals, and research methodologies undertaken across the four-study dissertation project outlined above. Ten chapters comprised the dissertation.

Chapter 1 provides an introduction to the PPN time-frames as a field of psychology and its development. The literature review conducted indicated that PPN psychology has not been recognised as a dominant field of psychology and the reasons for this are discussed. The introduction presents the emerging theories that are gaining empirical support as influential tenets to the field of PPN psychology. A discussion focussing on mechanisms by which parental influence may impact the growth and development of prenates during the time of pregnancy is included.

Chapter 2 includes a literature review which covers the development of PPN parenting programs and the empirical evidence to support these programs. Where appropriate, theoretical perspectives that influenced the programs' content is discussed. Further, a summary of limitations in methodologies shown in the literature is presented, along with how the current research project addressed them. Chapter 3 extends upon the discussion targeting the importance of fathers and outlines relevant theories, the concept of role identity, and significance for a healthy transition to fatherhood. Lastly, barriers to fathers being involved in PPN parenting programs are outlined.

Chapter 4 provides a summary of the aims and research questions of the four studies. Chapter 5 introduces the first of the exploratory studies that aimed to unveil parental views (via thematic analysis) on two factors: (a) quality and appropriateness of existing PPN parenting programs; and (b) factors that create stress during a pregnancy, and associated

coping and support strategies that are deemed important by parents. Chapter 6 is dedicated to a discussion of Study 2, where the focus was on extending current empirical evidence, by exploring beliefs relating to mindfulness behaviour of mothers and fathers towards their prenates. Specifically, parental thoughts, emotions, beliefs, moods, as well as quality of the partner relationship were investigated. The concept of mindfulness and related benefits are introduced. Evidence for positive outcomes of interventions delivered to pregnant mothers (and in one instance couples) on maternal stress, anxiety, and depression are detailed. Methodological limitations and suggestions for future research are also included. The outcomes from both Study 1 and 2 were used to partially inform questions asked in the two Delphi methodology studies, which formulated Studies 3 and 4.

Chapter 7 presents Study 3, which applied Delphi methodology using a panel of expert parents. A review of existing literature concerning adult education in general, as well as in the context of PPN parenting programs and Delphi methodology, is detailed. The intention was to determine whether parents (who met predetermined expert criteria) could reach consensus on items relating to design, development, and delivery of PPN parenting programs. The goal was to gain clarity where research has been inconsistent.

Chapter 8 focusses on Study 4, which was a replication of Study 3. The difference being that the Delphi expert group was made up of birth professionals. A detailed comparison of results found between the expert parent and birth professional groups from Studies 3 and 4, is discussed in Chapter 9. A comprehensive list of recommendations (from across the four studies), for inclusion in future PPN parenting programs, is also presented.

Lastly, Chapter 10 encompasses a general discussion of the limitations and key findings from across the four studies. Implications for effectiveness of PPN parenting programs for the 21st century, as well as future research ideas, are addressed.

## PPN Psychology

The remainder of this chapter focusses on three aspects. Firstly, PPN psychology is defined and a discussion of why this approach is not accepted as a mainstream field of psychology is presented. Secondly, epigenetics is introduced, as the literature suggests it to be a leading influencer in PPN psychology. Finally, factors relating to parental influences that may impact the growth and development of prenates during gestation are examined.

This discussion includes theories relating to expecting parents' behaviours which may influence a healthy and safe in-womb environment for prenates. Additionally, the concept of "fetal programming", that may occur via the biochemical exchange between mothers and babies is introduced, and discussed. Whilst maternal and paternal stress and anxiety are a normal and common occurrence during a pregnancy (e.g., Cowan & Cowan, 2000; Hussaini et al., 2011), potential negative outcomes exist for mothers, fathers, and prenates if stress and anxiety are not managed throughout the time of pregnancy. The negative outcomes are discussed in general, as well as in the context of fetal programming.

**PPN psychology defined.** PPN psychology has been broadly defined as "an interdisciplinary field of research and practice with the scientific focus on prenatal and perinatal conditions of human life" (Hruby & Fedor-Freybergh, 2013, p. 76). The myriad of interdisciplinary scientific fields that have influenced PPN psychology include neuroscience, genetics, epigenetics, embryology, bonding and attachment, midwifery, obstetrics, sociology, philosophy, and developmental psychology (Fedor-Freybergh, 2002; Hruby & Fedor-Freybergh, 2013; Schore, 1994). Further, it is a science that focusses on the intellectual, mental, emotional, relational, and physiological development of babies spanning conception, pregnancy, labour, delivery, and the fourth trimester period (Hruby & Fedor-Freybergh, 2013; Verny, 1984; Ward, 2004).

McCarty (2009) extended this scope by advocating that the focus of PPN psychology lies with examining how the time from conception, life in the womb, and the birth experience, forms the *blueprint* for life for prenates post birth. For example, health and learning abilities (Hruby & Fedor-Freybergh, 2013). McCarty's (2009) view considered the perspective of the prenate from inside the womb. This built upon the viewpoint held by PPN psychology pioneers that gestation, birth, and the fourth trimester are the major chapters for determining how a human being will respond in the world (Verny & Weintraub, 2002a). Further, it was thought that what occurs to prenates during this period of time marks the beginning of the life continuum, and who a new *Being* will become in life (Fedor-Freybergh, 2002). More recently, Lyman (2011b) highlighted that PPN psychology focusses on the origins of all human behaviour.

As early as the 1970s, researchers began establishing PPN psychology. For example, Liley (1972) focussed on personality development and postulated that the environment a prenate is exposed to in-utero is a key influencing factor on the type of person that baby will develop into. Three decades on, Fedor-Freybergh (2002) supported this theory and underlying philosophy for PPN psychology, that it is the mother's psycho-social environment that influences the prenate. Fedor-Freybergh (2002) further advocated that a pregnant mother's relationship with the prenate's father impacts the womb environment. More specifically, fathers are believed to be a key influencer of a healthy pregnancy outcome, as prenates may be shaped by all that occurs during residence in the womb (Fedor-Freybergh, 2002). Examining the influence of both mothers and fathers was a key focus in the current studies.

Whilst research has been completed to enhance understanding of the *real* experience of a prenate, PPN psychology is still in its infancy in explaining human behaviour from conception through to post-birth. The next section outlines the reasons for this.

**PPN Psychology: Blocks to achieving mainstream acceptance as a field of psychology.** A review of the literature revealed three key reasons for the lack of notoriety of PPN psychology in the arena of developmental psychology. Firstly, whilst there is an emerging body of research, there is a paucity of clinical and evidence-based data to support and quantify proposed principles. PPN psychology postulates that developing prenates are capable of experiencing, remembering, and responding to experiences exposed to in-utero (Chamberlain, 2013; Lyman, 2011a; Verny & Kelly, 1981; Weinstein, 2016). Additionally, events experienced by prenates are thought to be retained, imprinted, and played out throughout the lifespan via emotion, behaviour, bonding and attachment (or lack thereof) in subsequent relationships, and relational capability (Lyman, 2011a).

The PPN psychology field has largely focussed on exploring and explaining the impact of in-utero experiences on lifespan development, by using regression techniques on adult populations. Examples include: primal integration (Lake, 1982), rebirthing methods (e.g., Ray & Orr, 1983), primal therapy and reliving prenatal trauma experiences (Janov, 1983), breathwork (Grof, 1985), hypnotherapy (Chamberlain, 1988, 2013; Cheek, 1986; Emerson, 1998; Lake, 1981), and guided imagery (Verny & Weintraub, 1991). Whilst practitioners have reported clinical cases using the above techniques, empirical research that grounds PPN psychology into a scientifically proven model, or series of models, has not yet been rigorously conducted.

Secondly, there is a lack of congruence between the pre- 21st century perspective held in the medical and obstetric community, that the womb is a place for anatomical development only (e.g., Chamberlain, 1999a, 1999b; Fedor-Freybergh, 2002; Lyman, 2011b), and the underlying premise that prenates are conscious (Chamberlain, 1999a). This consciousness is arguably displayed by behaviours including hearing before ears are fully developed, seeing whilst eyelids are still fused shut, moving volitionally and with contextual purpose before the

brain is fully developed, and demonstrating social interaction in-utero (e.g., with a twin) (Chamberlain, 2013).

Thirdly, a widely held belief historically was that prior to two years of age, a child was incapable of thoughts, feeling sensations, or emotions (e.g., Chamberlain, 1998; Verny, 1984). This dominant view was largely an outcome of outdated data on neurological development in-utero (for an in-depth review of early neurological research see Grafstein, 1963; Salam & Adams, 1966). The current view on prenatal neurological development is discussed in the next section. In summary, further rigorous research that employs standardised procedures is warranted, to support the efficacy of PPN psychology (Lyman, 2011b; Rudestam & Newton, 2007).

The science of epigenetics has also been researched in the context of PPN psychology in recent years. To understand existing parents' and birth professionals' perceptions and level of knowledge of epigenetics, several questions were included in the Delphi methodology questionnaires of Studies 3 and 4. The purpose was to determine whether epigenetics was considered an important topic for inclusion in future PPN parenting programs. Thus, the following section provides the theoretical foundation behind these two studies.

**The emergence of epigenetics as a leading influencer in the PPN psychology field.** Research focussing on the science of epigenetics has grown over the past decade (Lipton, 2008; Knopik, Maccani, Francazio, & McGeary, 2012; Serpeloni et al., 2017). Epigenetics is commonly defined as the study of heritable changes in gene function that occur without a change in the DNA sequence (Church, 2009; Riddihough & Pennisi, 2001). More specifically, epigenetics seeks to understand the inner and outer environmental sources that activate gene expression and suppression (Church, 2009; Lipton, 2008; Weinstein, 2016). In the context of PPN psychology, epigenetic researchers have asserted that the human brain develops in response to environmental conditions exposed to in-utero; whereby genes are

either expressed or inhibited in preparation for life outside of the womb (Anacker, O'Donnell, & Meaney, 2014; Hruby & Fedor-Freybergh, 2013; Janov, 2015; Roth & Sweatt, 2011; Zucchi et al., 2013).

In 2001, as a result of the findings from the Human Genome Project (Li, Gu, Wang, & Nekrutenko, 2001; Paabo, 2001), the roles of nature (genes) versus nurture (environment) and the implications of the combination on a developing prenate, were reconsidered from the traditional biology-based belief (Lipton, 2001b). The accuracy of the more traditional view in science, where it has long been accepted that the human expression is 90% to 95% controlled by genes was examined. Any deviations (5% to 10%) in personality could be attributed to environmental aspects (nurture) (Lipton, 2001b). In brief, the Human Genome Project aimed to discover the number of genes that existed in human beings. This was achieved by exploring conventional thought that there was one gene code for each of the proteins that make up the human body (some 70-90,000), and an additional 10,000 regulatory genes that control for the expression of traits such as emotion, intelligence, and awareness (Lipton, 2001a) (For a full review of the Human Genome Project see Li et al., 2001; Paabo, 2001).

Unexpectedly, the results showed only 34,000 genes for an entire human. The researchers offered the conclusion that the belief in genetic determinism for *whom* a human becomes was defunct. In response, Baltimore (2001), a world-leading geneticist, stated that:

> ….it is clear that we do not gain our undoubted complexity over worms and plants by using more genes. Understanding what does give us our complexity; our enormous behavioural repertoire, ability to produce conscious action, remarkable physical coordination, precisely tuned alterations in response to external variations of the environment, learning, memory … need I go on?—remains a challenge for the future (p. 815).

More recently, McGowan and Szyf (2010) suggested that "epigenetics could serve as the bridge between the social sciences and biological sciences, allowing a truly integrated understanding of human health and behaviour" (p. 71). Epigenetics asserts that it is the perception of environment that influences gene activity, or the suppression or expression of a gene (Anacker et al., 2014; Lipton, 2001a; Smart, Strathdee, Watson, Murgatroyd, & McAllister-Williams, 2015). Scientists have determined that genes are unable to control biology as they are unable to turn on or off without an environmental signal (Appleton et al., 2013; Nijhout, 1990; Symer & Bender, 2001). Additionally, positive perceptions of the environment produce growth and thriving responses, whilst negative perceptions activate a protection response (Appleton et al., 2013; Lipton, 1999). This in turn may influence neuronal pathways in the brain leading to learned behaviour (Lipton, 2001b; Zucchi et al., 2013). Therefore, these findings may have implications for prenates during their time in-utero, when they are developing body, organs, brain, intelligence, forming memories, and demonstrating learning and related behavioural characteristics (Lipton, 1998; Smart et al., 2015).

For example, if an expecting mother is chronically stressed, the adrenal system pervasively releases stress hormones into the bloodstream which cross the placental barrier (Christensen, 2000; Peckham, 2013). The prenate receives these hormones which activate the hind brain, as opposed to frontal cortex (Christensen, 2000). If this was to occur during the time of frontal lobe development in the prenate, it may lead to a decrease in growth in intelligence and reasoning capability, which has been shown to continue post birth (Christensen, 2000). It is important to note that individuals differ in their susceptibility to being influenced by environmental factors. It appears not to be a 'one-size-fits-all' dogma, as whilst all influencing factors are not yet known, some research has suggested that the level of

influence of positive and negative experiences in-utero can be linked to gene variants (Appleton et al., 2013; Belsky et al., 2009; Pleuss & Belsky, 2011).

A specific example is the dopamine receptor D4 (Gene - DRD4) 7-repeat allele, which when *switched on* in an infant, moderates effects of negative maternal environmental stimuli in infant behaviour (Bakermans-Kranenburg & van Ijzendoorn, 2006). Oberlander et al.'s (2008) study included 82 mother-infant dyads from British Columbia, Canada. When salivary cortisol levels of participating infants was measured at three months post birth, it was found that maternal prenatal depression and anxiety were associated with the activation of the NR3CI gene within the baby. Of note, the NR3CI gene is a receptor gene that binds with cortisol, the primary stress hormone, and the gene has been found to be receptive to epigenetic modification when environmental stress exists (Smart et al., 2015). Oberlander et al.'s (2008) findings indicated that infant hypothalamic-pituitary-adrenal (HPA) reactivity was affected, which has been linked to vulnerability to stress and responding to stress in an adverse manner (Oberlander et al., 2008). Smart et al.'s (2015) recent meta-analysis examined seven studies that utilised rat and human samples to investigate the relationship between maternal prenatal depression and anxiety and the NR3C1 gene. Findings supported those of Oberlander et al. (2008).

***Epigenetic research limitations in the context of PPN psychology.*** As a result of the literature review conducted on environmental factors that may influence prenatal gene expression, five key complexities were identified: (a) an inability to control for maternal postnatal anxiety and depression in study participants. This may have impacted self-report perceptions of the extent of influence prenatal events may have had on a baby's behaviour post birth (DeWeerth, van Hees, & Buitelaar, 2003); (b) lack of clarity on the possibility of *gene expression combinations* that may influence susceptibility to prenates' responses to in-womb environmental experiences (Rice, Jones, & Thaper, 2007); (c) incomplete knowledge

of which genes are subject to influence by environmental stimuli (is it all genes or only some?) (Roth & Sweatt, 2011); (d) incomplete understanding of which aspects of the environment a prenate is exposed to during gestation leads to genetic modulation (Appleton et al., 2013); and (e) a lack of longitudinal studies being undertaken. This may limit understanding of the full impact environmental factors a person is exposed to across the lifespan has on genetic expression (Peckham, 2013; Zucchi et al., 2013).

In sum, epigenetics is the examination of how gene expression changes based on environmental influences, whilst not changing the sequence of DNA (Bird, 2007). The developmental outcome of a growing prenate seems to be a mix of genetic structure and environment, and the interplay of both at key developmental stages throughout gestation (Caspi & Moffitt, 2006; Meaney, 2010; Rutter, 2007; Sokolowski & Wahlsten, 2001). Environmental factors such as maternal stress, nutrition, and toxins, may influence neural pathway development in the different regions of the brain as a prenate develops (O'Donnell et al., 2014). The ability of mothers and fathers to create a loving womb environment from the earliest moments may be epigenetic therapy for growing prenates (Church, 2009). It appears that cells are shaped by where they live (Lipton, 2008), and for prenates, that is within their mother's body. The literature has postulated that expecting parents act as epigenetic engineers for prenates when the prenatal environment is improved (Lipton, 2008; Nathanielsz, 1999). Including a knowledge-base on the science of epigenetics, as well as skills on ways that expecting parents can positively influence genetic expression of their baby may be of value in future PPN parenting programs. Parents' and birth professionals' perceptions regarding this were sought in Studies 3 and 4 of the dissertation project.

**Parental Influence on a Prenate**

As highlighted, recent research in the field of epigenetics supports that human prenates activate and suppress gene expression levels in response to the environment they

experience in-utero (e.g., Cao-Lei, Laplante, & King, 2016; Nemoda & Szyf, 2017; Smart et al., 2015). As a result, creating the healthiest environment for mothers and prenates during the time of pregnancy is important to prevent negative emotional, psychological, genetic, and physical outcomes later in life for the babies (Fedor-Freybergh, 2002). Winnicott (1960)—one of the early pioneers of PPN psychology, postulated that if a mother did not provide 'good enough' care to her prenate during pregnancy, a child would not come into existence fully. Rather, they may live a life that is reactive, based on early exposure to an environment non-conducive to healthy personality development (Winnicott, 1960). The term 'good enough' was described as having occurred when a mother was consciously aware of the possible impacts her behaviour and choices had on a prenate, as well as having an orientation to be consistent and predictable in creating a thriving environment (Winnicott, 1960). For clarity, the term 'good enough' is defined as not being perfect and does not place blame or guilt on parents. Instead, 'good enough' focusses on authenticity in being *human*, making mistakes, and being conscious and aware enough to learn from the mistakes and change behaviour accordingly (Winnicott, 2002). The role and influence of the father was not discussed in this paradigm, which may have been a consequence of the era where a mother was more commonly the primary caregiver. In the context of the current research, the consideration of fathers was included to address this.

Consistent with epigenetics, from an embryological perspective, it is important that mothers and fathers create healthy in-womb conditions for prenates throughout pregnancies. Specifically, when cells are at choice points during gestation of whether to continue to grow (so the overall body of the prenate can flourish), or to specialise into a specific function (e.g., become a lung, heart, liver, immune system, specific region of the brain cell), ensuring conditions are optimised may be essential to maximise babies' survival post birth (Nathanielsz, 1999). It is thought that healthy prenate development requires that each cell is

able to make the right decision at the right time, so that each part of the growing human body can reach its full preterm potential (Nathanielsz, 1999). A mistimed cell division or differentiation can lead to limbs, blood vessels, organs, regions of the brain and so on having too few cells, resulting in potential challenges throughout the lifespan (e.g., if the lungs are undeveloped then respiratory issues may evolve throughout life) (Nathanielsz, 1999).

The learning that occurs for a prenate in-utero may set the tone for what will be needed for survival post birth, emotionally, mentally, relationally, and physically (Fedor-Freybergh, 2002). This learning is thought to occur via two channels. Firstly, via implicit and explicit memory of events experienced (Fedor-Freybergh, 2002). Secondly, McCarty (2009) suggested that a prenate may learn through encountering and internalising biochemically that which the mother feels, experiences, and perceives during pregnancy. This theory is discussed in detail next.

**Biochemical exchange between mother and prenate.** A predominantly harmonious and stress free womb environment may be key to optimal prenate development, as cortisol (the main stress hormone in humans) instructs cells to differentiate before they have fully matured and divided (Nathanielsz, 1999). This may lead to incomplete growth of vital organs and the body overall (Nathanielsz, 1999). Additionally, as a prenate's brain grows rapidly in terms of neuronal connections, exposure to pervasive stress hormones from the mother may impede the way neural connections develop (Charil, Laplante, Vaillancourt, & King, 2010). This in turn may change cognitive function and behaviour (Charil et al., 2010; Weinstock, 2008). In terms of brain development, it is thought that the womb environment plays a significant role, as neurons are rapidly being birthed (siring), connected (wiring), and are constantly firing (Nathanielsz, 1999). Where the neurons settle in the brain depends on the conditions exposed to (Nathanielsz, 1999). The quality of nutrients and hormones that cross the placenta may be critical, as brain development can be permanently altered when siring

and wiring of neurons is restricted due to neuron cell death (Gopnik, Meltzoff, & Kuhl, 1999). This has been proposed to be a result of high levels of stress hormones and toxins such as cigarette smoke and alcohol which restricts oxygen supply, crossing the placenta from mother to prenate (Gopnik et al., 1999; Nathanielsz, 1999). The consequences may include negative impacts on babies' emotional self-regulation ability (Korja et al., 2017; Thomas, Letourneau, Campbell, Tomfohr-Madsen, & Giesbrecht, 2017); and mental ability, memory and learning processes, developmentally appropriate behaviour post birth (Nathanielsz, 1999). Further, an enlarged growth of the right amygdala may result (in girls only), which is associated with negative attentional bias, mood disorders, and the genetic expression of anxiety throughout the lifespan (Beck, 2008; Wen et al., 2017). Of note, the gender difference in neurodevelopment is consistent across research, where female prenates appear to be more susceptible to their mother's change in stress levels during pregnancy (e.g., Clifton, 2010). As discussed, recent research in the field of epigenetics has started to provide a framework to explain how the quality of the in-utero environment may also impact on gene expression of a prenate, a further influencer on the consequences identified by Nathanielsz (1999) above.

When considering factors that may impact human development, research has traditionally focussed on post birth experiences and influences and how they impact neural pathways in the brain (e.g., Schore, 2001, 2003). Over recent decades, with the rise of fields such as neurobiology, there has been a shift in belief to assert that prenates are cognitive, self-aware, and interactive with their environment during the time in the womb (Chamberlain, 1998; Doughty, 2007; Verny & Kelly, 1981). Further, mothers' responses to life events, relationships, and the pregnancy itself may be key influencers in the development of babies prior to birth (Doughty, 2007; Weinstein, 2016). One way prenates may be influenced in the womb is through the mutual exchange of hormones and chemicals that cross the placental barrier in direct response to their mother's thinking, emotional, and behavioural responses to

life as she perceives and experiences (McCarty, 2013; Rurak, 2001; Wadhwa, Sandman, & Garite, 2001; Weinstein, 2016). Examples include emotional highs and lows (Yehuda, Halligan, & Bierer, 2001), exposure to violence of any kind (Gilliland & Verny, 1999), substance use (Zeskind & Stephens, 2004), abundance of or lack of social support (Van den Bergh, Mulder, Mennes, & Glover, 2005), relationship joy or challenges (Halford et al., 2010), social stressors such as financial issues (Nolan, 2015), and chronic stress and/or trauma (Weinstein, 2016).

Each experience may elicit a biochemical dialogue between mother and baby in the form of stress hormones, oxygen, carbon monoxide, oxytocin, viruses, pollutants, nutrients, minerals and cells, as well as waste from the prenate being passed back to the mother (Doughty, 2007; Knopik et al., 2012). For example, Correia (1994) found that when a pregnant mother was exposed to a violent movie and had a fear-based emotional response to it, so did the prenate, measured via fetal heart rate monitor. Further, Glover (1999) observed that uterine blood vessels were constricted when a pregnant mother experienced stress. This has been linked to decreases in both oxygen and nutrient flow through the placenta that may result in low birthweight and heightened stress hormones for a baby (Glover, 1999). Field et al. (2003) examined trait anxiety of 166 women from the United States of America (USA), in the second trimester of pregnancy. Results indicated that mothers who recorded high norepinephrine and low dopamine were matched by their prenate. When epigenetics is considered in the context of stress and anxiety experienced by mothers during pregnancy, it has been found that epigenetic modifications occur in their prenates (Cao-Lei et al., 2016; Roth & Sweatt, 2011). This has been shown to lead to gene expression that promotes stress behavioural responses by the baby post birth (Roth & Sweatt, 2011), seemingly due to changes in the baby's HPA function (Anacker et al., 2014). This is discussed in more detail in the next section.

Stressful events and experiences are common and natural for humans to experience. The time of pregnancy is no exception. However, research has posited that when maternal stress experienced is chronic, the biochemical exchanges that occur between the mother and prenate may impact gene expression and health outcomes of the baby sub-optimally (Weinstein, 2016). This concept is termed fetal programming and is discussed next.

***The concept of fetal programming.*** The term fetal programming has been defined as "the process by which a stimulus or insult during a critical developmental period has a long lasting or permanent influence" (Sandman & Glynn, 2009, p. 258). It is a model where genes and environment interact and subsequent gene expression is influenced by the experiences (Barker & Clark, 1997; Nathanielsz, 1999). The fetal programming model presupposes that there is an association between regular exposure to stressful conditions in the womb, and a lifelong risk of negative health outcomes such as mental and motor development challenges (Isgut, Smith, Reimann, Kucuk, & Ryan, 2017; Sandman, Davis, Buss, & Glynn, 2012).

***The impact of maternal stress and anxiety on fetal programming.*** Maternal stress is one of the most researched influencers on fetal development. Epigenetic outcomes have been shown to result from the process of maternal stress, and as stated earlier, this is due to the stress hormone cortisol (as well as more positive feeling hormones such as oxytocin), crossing the placental barrier during pregnancy. This may potentially influence the neural structures and nervous system development (Hruby & Fedor-Freybergh, 2013; Weinstein, 2016) of the growing prenate. This may lead to harmful effects such as a predisposition in a baby to anticipate a stressful life post birth (Chen & Zhang, 2011; Sandman et al., 2012; Sandman & Glynn, 2009). By the 24th week of gestation, a prenate's cortical circuits are increasing by a rate of 250,000 neurons per minute (Cowan, 1979; Hruby & Fedor-Freybergh, 2013). This may mean that whatever the prenate is exposed to has the capacity to influence vulnerability of being programmed in alignment with the stimulus. This seems to be

irrespective of whether the stimulus is healthy or unhealthy mentally, emotionally, cognitively, or physically (Chamberlain, 2013). Fetal programming in this context is where a prenate's developing HPA axis is trained to respond to the environment it is subjected to in-utero, as the blueprint for what to expect post birth (Lefmann & Combs-Orme, 2014).

Stressful events during pregnancy have also been shown to trigger glucocorticoids from the mother's HPA axis that may well reach the prenate via the placenta (Veru, Dancause, Laplante, Luheshi, & King, 2014). The impact can alter age appropriate learning and development post birth in boys (Glover & Hill, 2012), as well as subsequently programming the prenate's HPA axis and immune functioning (Veru et al., 2014). Female babies tend to experience higher levels of anxiety, depression, and stress post birth than their male counterparts when exposed to prenatal maternal stress (Glover & Hill, 2012; Wen et al., 2017). The gender differences in fetal programming outcomes appeared to be related to the placenta (Sood, Zehnder, Druzin, & Brown, 2006). Specifically, different concentrations of cortisol pass through the placental cord blood supply in male and female prenates, in direct response to both cytokine expression (which is responsible for immune function and inflammation), as well as glucocorticoids (refer to Clifton, 2010 for a full review). This has led to different coping strategies being implemented based on gender, to adverse life events post birth (Stark, Wright, & Clifton, 2009).

Fetal programming is discussed further in the literature review presented for Study 2 (Chapter 6). Specifically, the discussion focusses on impacts of maternal stress, anxiety, and depression, and advocates for PPN parenting programs including skills for expecting mothers and fathers that mitigate stress and positively impact growing prenates. The tools to achieve this involve being mindful of thoughts and behaviours during pregnancy.

**The impact of unmanaged maternal stress and anxiety on a developing prenate.** Maternal stress and anxiety is common (e.g., O'Donnell, O'Connor, & Glover, 2009), and

can be initiated by a range of triggers including depression, physical trauma, and exposure to external challenges such as chemicals, noise, and danger (George et al., 2013; Verny, 2012). Findings from recent studies which have explored the consequences of maternal stress and anxiety on the prenate, in the frameworks of brain morphology and subsequent cognitive and psychomotor development, have consistently shown reduction in fetal brain growth (Feinberg et al., 2015; Glover & Sutton, 2012).

For example, Buss, Davies, Muftuler, Head, and Sandman's (2010) longitudinal study measured maternal stress and subsequent brain morphology of babies. Thirty-five California-based pregnant women were recruited, and maternal anxiety was measured at 19, 25, and 31 weeks gestation. Neurodevelopment of the children was assessed using Structural Magnetic Resonance Imaging scans when they were between six and nine years old. After controlling for total grey matter volume, age, gestational age, and perceived stress post birth, results indicated children born to mothers with pregnancy anxiety at 19 weeks gestation, had reduced density in the prefrontal cortex, premotor cortex, cerebellum, and medial and lateral temporal lobes associated with cognitive performance (Buss et al., 2010). Interestingly, when mothers experienced maternal anxiety between gestational weeks 25 and 31, the local reductions in grey matter were not detected in the offspring (Buss et al., 2010). This suggested that timing of maternal anxiety mattered. Specifically, it may be critical for maternal anxiety to be minimised during trimester two, if optimal brain development of prenates is to occur.

Expecting parents may therefore benefit from education on: (a) the potential impacts of responses to stress and anxiety experienced during pregnancy, and the subsequent effects on the developing brain of the baby; and (b) the times during a pregnancy where the pervasive exposure to stress hormones could impact cognitive development the most. Based on these findings, teaching effective stress and anxiety management skills to expecting

parents may be of value. The perceived need was investigated in Studies 3 and 4, as no literature was found that specifically examined these education topics in PPN programs.

Kingston, Tough, and Whitfield (2012) conducted a systematic review on prenatal maternal psychological distress and later infant cognitive and psychomotor development. In total, 17,792 studies were examined, and 18 met the criteria for the review (for full details see Kingston et al., 2012). Sixty-seven percent of the studies examined represented community-based samples spanning first world countries that included the USA, Australia, Sweden, Finland, Netherlands, New Zealand (NZ), and Israel. Maternal prenatal stress, determined by stressful life events, perceived stress, depression, and maternal cortisol levels was measured in the second and third trimesters. For the seven studies that focussed on cognitive development, results indicated a cognitive delay in 25% of infants born to prenatally distressed mothers (Kingston et al., 2012). This was opposed to seven percent of infants born to non-distressed mothers, when measured at three to 12 months post birth (Kingston et al., 2012). Of note, effect sizes were small and clear trends that related to timing during the pregnancy where maternal distress may have influenced the prenate most, was not clear. However, one of the reviewed studies did find a significant second trimester effect ($p<.05$) on cognitive outcomes for the baby up to 12 months post birth.

A methodological strength across the studies in the systematic review included postpartum distress being controlled for. In addition, two consistent limitations were: (a) the lack of reporting of significance levels of potential confounding factors such as maternal demographics, maternal behaviour, and social factors (e.g., marital conflict and social support); and (b) the lack of inclusion of language development as a factor of cognitive ability (Kingston et al., 2012). Whilst addressing these limitations was not within the scope of the current research, it is proposed future studies that focus on prenatal maternal

psychological distress and later infant cognitive and psychomotor development, could take the limitations into account.

When infant psychomotor development was measured three days to 12 months post birth, significant ($p<.05$) associations with maternal distress were observed across five studies (for full review, see Kingston et al., 2012). Distress experienced (as measured as pregnancy specific stress, anxiety, anger, cortisol levels, and corticotrophin releasing hormone) in the second trimester, was more associated with poor psychomotor performance than when the mother experienced distress in the third trimester (Kingston et al., 2012). One reported strength in the study design was that postnatal distress was controlled for (e.g., Buitelaar, Huizink, Mulder, de Medina, & Visser; 2003; van Batenburg-Eddes et al., 2009). Interestingly, when an infant's mother experienced both pre and postnatal distress, the infant was not more likely to suffer psychomotor delay, implying that prenatal distress was the critical factor (Kingston et al., 2012).

In summary, although the effect sizes in the review were small, and diverse forms of distress were not measured, results suggested the second trimester was the most at-risk time period for distress to negatively impact the prenate, in relation to cognitive and psychomotor development. It is worthy to note that no studies explored the effect of distress during trimester one, and future research is warranted. The use of longitudinal design would also add to the body of knowledge and may be of value when determining how long the effects of maternal prenatal distress persist across the lifespan of the exposed baby.

**Summary**

As discussed, the importance of exploring the PPN psychology field has gained momentum since the 1980s. However, the majority of research completed to date has been measured via subjective experience (e.g., hypnosis, regression therapy), where both behavioural and somatic outcomes were observed post birth (Chamberlain, 2013; McCarty,

2005). The emerging scientific field of epigenetics has now added to the evidence-base for PPN psychology, particularly when the impact of environmental influences on gene activity of developing prenates is examined. Future research is warranted however, to increase understanding of epigenetics in the context of PPN psychology, and to explore what specific (positive and negative) prenatal events may impact genetic programming. This information may inform content in future PPN education programs for birth professionals and expecting parents alike.

The combination of nature and nurture has been widely accepted as the building blocks for development of a human, which interplay from conception throughout early childhood (Lipton, 2001b). Determining the influence of nurture (the environment) on the genetic expression of a prenate is important for parents, so that they can adopt strategies to navigate stressful events throughout pregnancy and beyond. There may be no greater time of influence on human development than the in-utero time, as the prenate is in a constant state of absorbing information required for development, growth, and survival post birth (Lipton, 1998). Therefore, expecting parents who create an environment dominated by support, love, and nurturance may influence future genetic expression in the prenate. Similarly, if the in-womb environment is dominated by fear and stress, this may influence genetic expression that creates a readiness for survival in this type of environment once born (Anacker et al., 2014; Liu et al., 1997). The ongoing challenge is to accurately identify the most critical developmental milestones throughout gestation, where gene-environment interactions are capable of greatest positive impact, and also pose a threat to optimal development for the prenate (O'Donnell et al., 2014).

The inclusion of epigenetics as a topic of interest was limited to several questions being asked in the Delphi methodology studies (Studies 3 and 4). Given that epigenetics research focussing on the prenatal time is gaining momentum, the intention was to learn

about the level of perception, knowledge, and or [mis]understanding of epigenetics by expert parent and birth professional cohorts. This information was then used to determine appropriateness of educating parents on the topic in future PPN parenting programs.

The womb may be the first *school* that a human attends. Research has suggested the time in-utero determines optimal development, as well as readying baby for life outside of the womb; mentally, emotionally, relationally, and physically (Fedor-Freybergh, 2002; Nathanielsz, 1999).

Previous research predominantly focussed on mothers' influence on prenates. Despite this, fathers' behaviour and emotional expressions may also have an effect on expecting mothers and prenates (Chamberlain, 1999c; Verny & Kelly, 1981). For example, if a father is emotionally, mentally, or physically abusive to the mother, the mother will react to those experiences, likely with emotions such as fear, stress, anxiety, or panic. These emotions, when converted to hormones and chemicals, can surge beyond the placental barrier. As a result, the prenate is thought to learn what *to expect* from future relationships (Davis et al., 2016; Fisher et al., 2012; Turner & Turner, 2005). The role fathers play from conception through until the end of the fourth trimester was of interest in the current research program, and is discussed in detail in Chapter 3.

**The Next Chapter**

The focus of the current research was to investigate the factors which need to be included in PPN parenting programs to optimise thriving for mothers, fathers, and babies. In the sections above, PPN psychology was defined and discussed, and the intricate web and dynamic interplay of factors that can influence growing prenates throughout their time in the womb, has been reviewed. The following chapter offers a brief overview spanning 800 years and includes programs offered to mothers-only, fathers-only, and to couples transitioning to parenthood.

# Chapter 2: History of PPN Parenting Education

Literature discussing PPN parenting education dates back 800 years (Polomeno, 2009). Advances across the millennia support the inclusion of theoretical underpinnings in related research and PPN parenting programs, improved quality of research methodologies, and increased knowledge of factors that influence babies' growth and wellbeing in-utero. These advances have guided the content and timing of PPN parenting program delivery (with focus on consumer groups), program length, and program facilitators (including training, certification, and licensure). A major aim of the current four-study research project was to build on the scientific knowledge and empirical evidence to further develop clarity of the best factors to include in the design, development, and delivery of future PPN parenting programs.

A brief historical perspective of PPN parenting programs is presented from the earliest times recorded. The summary extends to present time in the 21st century. The chapter introduces theoretical perspectives where appropriate, and has five main sections: (a) historical overview, (b) programs and interventions that target mothers-only, (c) programs and interventions that target fathers-only, (d) programs and interventions that target couples during the transition to parenthood, and (e) a summary of limitations and how the current research project intended to address them.

## PPN Education Interventions for Parents: Historical Overview

PPN parenting education has been defined as the knowledge, skills, and instructions provided to parents on how they can most effectively achieve their role as a parent (Ponzetti, 2016). This includes ways to positively contribute to a prenate's and later child's emotional, cognitive, social, and physical development (Ponzetti, 2016). Polomeno (2009) formulated a historical overview of PPN parenting education dating from the 1300s to early 2000s. In brief, trends regarding pregnancy and childbirth information dissemination have progressed from intergenerational transmission from woman-to-woman via the family unit in the 1300s

to the 1800s (Lewis-Rowley, Brasher, Moss, Dunn, & Stiles, 1993), to the appearance of parenting advice books beginning in the late 1700s (Brock, Oertwein, & Coufal, 1993; Grille, 2005), to the inclusion of midwives leading up to the 1800s (Polomeno, 2009).

By the 1900s, formal PPN parenting education gained momentum via the American Red Cross on their mission to improve maternal and infant health (Polomeno, 2009). Starting in 1910 (and continuing for more than 100 years), the Cooperative Extension Services in the USA have been leaders in the development of parenting education, specifically through the use of the National Extension Parenting Education Model (DeBord, 2016). This model incorporated six content areas of parenting skills (care for self, understand, guide, nurture, motivate, and advocate) cultivated from empirical literature that were taught by trained parenting educators and focussed on parenting post birth and beyond (DeBord, 2016). One strength of this model was its design as a framework rather than a curriculum, thus allowing content to change to be in alignment with ever-evolving theories, best practices, and changes to the needs of parents and children (DeBord, 2016).

In the 1920s, the Child Study Association (CSA) of America conducted research by way of expert study groups. Research outcomes resulted in the following: CSA collated teaching materials for parent educators, advocacy for formal licencing of educators, and inclusion of fathers in parenting program initiatives (Lewis-Rowley et al., 1993). Due to the CSA's efforts, 75 major organisations were conducting parent education programs by the end of the 1920s (Brim, 1959). The 1920s also saw the introduction of John B. Watson's (1913) Behaviourism Theory in parenting programs, which emphasised skills in maternal nurturing to maximise child health and development (e.g., bonding and connecting with a prenate and baby once born, through communication and minimising stress) (Ponzetti, 2016).

By the late 1930s parent education offerings were significantly reduced. Government funding for family education in the USA decreased, in part due to research outcomes that

questioned the stability of families (e.g., increased divorce rates) and in response to economic difficulties during the Great Depression (Brim, 1959; Lewis-Rowley et al., 1993). However, with the economic boost in the USA post World War II (during the 1950s and 1960s), research and education money was again available for pregnancy and parenting research and teachings.

From the 1930s to the 1950s pain management education gained popularity, including the Lamaze psychoprophylactic method for childbirth, which involved labouring mothers using breathing techniques as a form of pain relief, instead of drugs. This movement gathered momentum worldwide (e.g., USA, Europe, Australia, South Africa, and Canada) in the 1950s and beyond. It is discussed in more detail later in this chapter as an example of early PPN parenting education that incorporated developmental theory. By mid-century, journal publications in the field of family life education, such as *Marriage and Family Living*, emerged, along with the formulation of organisations (e.g., National Council on Family Relations, 1984) that advocated for education relating to healthy families (Arcus, 1995). In the early 1950s, concerns surrounding the certification of educators and facilitators delivering Family Education programs were predicted to minimise the growth of the field (Longworth, 1952). In the 1960s, the first certification program for childbirth educators was created by the American Society for Psychoprophylaxis in Obstetrics (Polomeno, 2009).

Parenting education research escalated through the 1970s and 1980s with Skinner's Behaviour Modification Theory (1953) becoming a popular underpinning in post birth parenting programs. Techniques for operant conditioning via reward and punishment principles were incorporated, such as Gordon's (1978) Parent Effectiveness Training (Ponzetti, 2016). The 1980s also saw the inclusion of graduate programs in Family Life Education in the tertiary education systems in the USA (Arcus, 1995). Family Life Education began in response to societal changes that directly impacted families. This included increased

numbers of mothers and fathers in the workforce, as well as roles within families changing to both parents being responsible for primary caregiving (Hicks & Williams, 1981).

Agencies such as the Committee on Education Standards and Certification for Family Life educators were generated to monitor, set, and regulate standards for teaching criteria and educator qualifications (Arcus, 1995). Programs that focussed on communication skills for enriching couple and family relationships were also generated (e.g., Mace & Mace, 1986).

As a result of progressive sophistication of PPN parenting programs (from parenting advice books to licencing educators via certified childbirth education programs), researchers and educators focussed their attention on the addition of solid theoretical underpinnings to the curricula.

**Embedding theory into PPN parenting programs.** As PPN parenting education continued to evolve, educators advocated for programs to be grounded in theoretical underpinnings, where outcomes could be measured effectively and consistently (e.g., Fisher, 1986). Miller and Seller (1990) proposed that PPN parenting programs be designed to ensure that three elements were present. First, *transmission* of knowledge from the educator to the parents via structured content. This embedded Behavioural Learning Theory and was consistent with Zeichner's (1983) perspective, whereby parents were expected to incorporate the knowledge and skills gained from a program attended into behaviours during pregnancy and post birth (Tanner & Tanner, 1975). The second element was *transaction*, whereby both parents and educators were active participants and sharers of knowledge and experience to enhance learning. Third, *transformation*, where parents in education groups developed and grew their skills as a result of social interaction with other parents, was considered an important inclusion. Both the *transaction* and *transformation* elements are consistent with a Constructivist Theory of learning (Driver & Oldham, 1986). Specifically, learning from the differing perspectives of others by integrating new perceptions, beliefs, and attitudes through

action results in behavioural changes, in this case parenting behaviours (Thomas, Schvaneveldt, & Young, 1993).

Theory has also been discussed in the context of content areas for current PPN parenting programs. Developmental theories such as those proposed by Vygotsky (1962) and Piaget (1969) have been used to inform parents' understanding of key stages of human development and the appropriate competencies expected from a prenate, and later child, as they move through these stages (Ponzetti, 2016).

It is important to note that traditional PPN parenting programs dating back to the 1950s were based on two theoretical models—natural childbirth and Lamaze—both of which are still widely used in individual and group settings. Of note, the prenatal education models described below focus on preparation for labour and birth only and are not intended as comprehensive PPN parenting programs.

The first theoretical model is British obstetrician Dick-Read's (1944) natural birth approach, designed to reduce any fears an expectant mother may have pertaining to labour and birth. This was achieved by teaching muscle tension release techniques to minimise labour pain. Natural birth laid the foundation for the second theoretical model (Hauck, Fisher, Byrne, & Bayes, 2016) that utilised the Lamaze practice developed in the mid-1950s. As noted earlier, Lamaze is a psychoprophylactic method that prepares women for pain free childbirth without medications and anaesthetics. The method encourages relaxation during the labour and birthing processes, based on breathing techniques taught to both mothers and fathers (Lamaze, 1958).

To test the efficacy of the Lamaze psychoprophylactic theory, Bergstrom, Kieler, and Waldenstrom (2009) conducted a randomised study in Sweden. They compared the effectiveness of a non-psychoprophylactic PPN program that focussed on general childbirth education (i.e., birth and labour process as well as birth options), with the Lamaze program

that included psychoprophylactic breathing and relaxation exercises. Bergstrom et al.'s (2009) study consisted of 1,087 mothers and 1,064 of their partners expecting their first child. Participants were randomly assigned to either a natural group (training in psychoprophylactic breathing and relaxation techniques were provided), or the standard care group (participants received standard antenatal education that did not include psychoprophylactic training). All participants attended four, two-hour sessions in groups of 12, that comprised six couples. Results revealed no significant differences in the outcomes of use of epidurals through labour and birth, emergency caesarean section rates, and stress levels during childbirth (Bergstrom et al., 2009). This suggested that a labour and birth preparation program for parents grounded in a historical theoretical background may not impact pregnancy outcomes in the modern day, any differently than more generalised programs.

More scientific evidence is required to determine the most effective content for modern-day parent education programs that will result in optimal birth and post birth outcomes for mothers, fathers, and their babies. As the focus of the current research project was the PPN time-frames, a detailed account of studies that researched the Lamaze psychoprophylactic program, or other programs that focus exclusively on skills for labour and birth (e.g., hypnobirthing method, Cyna et al., 2006; Hauck et al., 2016) was not undertaken. Only parenting education programs that target the entire PPN time-frames are included throughout the remainder of this chapter.

**PPN Education Interventions for Parents: 21st Century**

Current parenting practice still focusses parenting psychoeducation on the time closest to birth as well as the fourth trimester. This has been evidenced in parenting support options and interventions such as the Bringing Baby Home (BBH) psycho-educational, 16-hour workshop offered in Seattle, USA (Dion, 2005). This program was co-created by John and Julie Gottman, who are considered world-leading researchers in the field of marriage and

family. BBH embraced the quality of the mother-father relationship as an influencing factor on a successful transition into parenthood, defined by low levels of depression and maintained relationship quality and intimacy (Gottman, Shapiro, & Parthemer, 2004). The program was administered by birth professionals who focussed on strengthening a couple's relationship. Basic parenting tips and infant development knowledge were shared with expecting parents and new parents (Gottman et al., 2004). Other programs have also targeted the time closest to birth and the first few months post birth (e.g., Collins & Fetsch, 2012; Johansson et al., 2011). However, the content has often been limited by focus on prenatal markers and how to care for a baby post birth. Outcomes have not consistently correlated with strong improvements in parenting capability (Petch & Halford, 2008).

Programs like BBH have demonstrated the importance of parenting education. Determining the most beneficial content and timing of delivery for expecting parents may prove essential to ensure mothers and fathers can be as skilled and confident as possible. PPN parenting programs have the potential to enable positive birth outcomes that include secure bonding and attachment, breastfeeding, and joyful transition as a couple to parenthood as mothers and fathers embark on the transition to parenthood (from partner to parent), be it for the first time or welcoming another child to the family.

**The influence of technology on PPN parenting programs.** As technology, research capability, and media advanced towards the end of the century, so did developments in PPN parenting education. With today's internet superhighway and social media, there are seemingly endless opportunities; geography is no longer a barrier to program attendance. Technology provides enormous flexibility in content delivery and consumer reach including: greater participant reach; diversity of educational content; openness by both parents and birth professionals to learn a wide array of perspectives and skills in the prenatal, birth, and postnatal arena; and a wide array of formats and delivery methods.

**Parenting support as a priority in governmental policy change.** Parenting support policies are being prioritised in Australia (Department of Health Maternity Services, 2017) and abroad (e.g., Europe) (Rodrigo, Almeida, & Reichle, 2016). Parents are encouraged to access psycho-educational resources whether it is general parenting information, expecting-couples coaching sessions, or group workshops (Rodrigo et al., 2016). Reported benefits in doing so include: improved prenatal care, positive parenting in the fourth trimester, and reduced maternal stress, anxiety, and depression (Abu-Saad & Fraser, 2010; Cox & Phelan, 2008). Regardless of the type of service expectant parents' access, Fukkink, Vink, and Bosscher (2014) maintain that it needs to be delivered in a non-judgmental, inclusive, and needs-based way. Further, offerings need to be cost effective, flexible in delivery approach, and based on science (Long, 2016). As Polomeno (2009) aptly acknowledged, we have entered a place of advanced practice in PPN parenting education. Thus, a better understanding of existing consumer groups typically targeted in PPN parenting programs may be useful to effectively tailor strategies for the inclusion of all relevant cohorts. Based on the literature review presented below, consumer groups to target in future PPN parenting programs were investigated in Studies 3 and 4 of the current research project.

## Consumer Groups for Programs

Examining the history of PPN parenting programs for parents in greater depth revealed three relevant categories of consumer groups for programs. These included: mothers-only, fathers-only, and couples transitioning to parenthood. A summary of PPN parenting programs for each consumer group is provided below. The discussion begins with programs and relevant research that target mothers-only, then explores fathers-only. It concludes with an overview of programs and research relative to couples transitioning to parenthood.

**Mothers as the primary focus in PPN parenting interventions.** There are a range of focus areas that PPN parenting programs for mothers-only have included. Three areas that have been empirically researched and continue to be important when developing future PPN parenting programs are reviewed in this chapter. They include: maximising bonding and attachment, mitigating maternal anxiety, and teenage mothers.

***Program focus: Maximising bonding and attachment.*** To maximise mother-infant bonding and attachment, Panthuraamphorn (1998) discussed the importance of fathers in his Prenatal Infant Stimulation program. This was in response to research that supported the notion that fathers have a critical role in influencing a prenate's growth and interaction during pregnancy as well as supporting a mother's ability to bond with her child (Cranley, 1981; Leifer, 1980). Whilst Panthuraamphorn (1998) acknowledged the critical role fathers play, only mothers received the program. The Prenatal Infant Stimulation program was administered to 24 pregnant women in total, with equal numbers in the treatment and control groups. The control group mothers attended routine antenatal care and the treatment group mothers attended the program that was delivered in two-hour sessions, four times per month. The program comprised two stages, whereby stage one began in the 12th week of pregnancy and included content and skills to enable prenatal bonding. Examples included: ways to interact with the father and the importance of abdominal touch, breathing, visualisation, and relaxation exercises in preparation for birth.

The second stage began in the 20th week of gestation and included skills on how to maximise a positive environment through touch, sound, and movement (Panthuraamphorn, 1998). Here the emphasis was on educating participating mothers that their thoughts and feelings may impact emotional and intellectual growth of the prenate (Panthuraamphorn, 1998). This theory has been well supported (Lipton, 2002, 2008; Michaud, 2012). Perceptions about whether mothers' (and fathers') thoughts and emotions experienced during

the pregnancy may influence their prenates were directly explored using an online questionnaire in Study 2 of the current research program (see Chapter 5). Investigating perceptions of whether fathers' thoughts and feelings may also influence their prenates, extended on Panthuraamphorn's (1998) scope that was limited to mothers-only.

Results from Panthuraamphorn's (1998) study were measured against physical markers of growth post birth. There was no statistical significance between babies born across the two groups in terms of weight or height. Head circumference was statistically significant at one and two months post birth ($p<.008$), but not at birth ($p=.158$). Additionally, the results showed babies born to treatment-group mothers had stronger personal-social development scores than did control-group babies as measured by the Denver Developmental Screening Test. This indicated that the program may have influenced physical and personal-social development of the babies. However, limitations included the small sample size as well as the lack of direct inclusion of fathers, even though the author stated the critical importance of their role to influence a mother's ability to bond with her baby.

***Program focus: Mitigating maternal anxiety.*** Research has widely supported that maternal pregnancy anxiety has been linked to negative postnatal outcomes such as low birth weight, premature delivery, and lower than average Apgar scores, which measures various aspects of the physical condition of a newborn such as heart rate, respiration, muscle tone, reflexes, and skin coloration (Berle et al., 2005). The best possible score is ten and a score ranging from seven to nine is considered normal (Berle et al., 2005; Dragonas & Christodoulou, 1998; Rondo et al., 2003). In an attempt to mitigate such outcomes, Consonni et al. (2010) conducted a non-randomised controlled trial in Brazil. Thirty-eight women participated in the ten-week Multidisciplinary Program for Childbirth and Motherhood Preparation (MPCMP). Sessions ranged between 50 minutes and three hours. Content focussed on pregnancy-related information and how to care for a newborn. Additionally,

women were given a tour of the maternity unit and taught breathing and relaxation techniques. Women were provided with opportunities to discuss their personal pregnancy and emotional experiences (Consonni et al., 2010). The control group comprised 29 pregnant women who attended routine prenatal care only at the Botucatu School of Medicine, San Paulo, Brazil.

Results showed statistically significant differences in birth delivery method. Specifically, those who completed the MPCMP predominantly had vaginal deliveries (81.6%; $p<.05$), whilst caesarean section births were higher for the control group (41.4%; $p<.05$). Results were not significantly different however for birth weight and premature delivery between the groups. State anxiety was also significantly reduced at the end of the pregnancy for the treatment group ($p<.05$). Given the increase in published research demonstrating partner support is positively linked to lower levels of maternal anxiety (e.g., Atasever & Altun, 2017; Maldonado-Duran, Lartigue, & Feintuch, 2000), one of the limitations of this study was that it only included mothers.

As discussed in Chapter 1, maternal anxiety is common (O'Donnell et al., 2009) and has been linked to adverse outcomes for the mother (Fisher et al., 2012; Huizink et al., 2017), father (Tohotoa et al., 2012), prenate (Feinberg et al., 2015), and partner relationship (Halford et al., 2010). Discovering factors that may contribute to maternal anxiety as well as understanding what skills and knowledge could be of value to parents in PPN parenting programs, were explored in Studies 1, 2, and 3.

***Program focus: Teenage mothers.*** Teenager mothers are an at-risk group for a wide array of negative pregnancy and birth related outcomes including preterm births, low birth weight babies, and infant mortality (Coley & Nichols, 2016). Further, Boath, Henshaw and Bradley (2013) found that this cohort are three-times more likely to experience post-natal depression (than older mothers), and that there is a lack of PPN services that specifically offer

information that is relevant to pregnant teen mothers. Old's (2008) Nurse Family Partnership (NFP) program aimed to improve pregnancy outcomes (e.g., birth weight, positive parenting) by improving prenatal health in teenage mothers. The program was designed to be delivered via multiple home visits by nurses trained in the NFP program (Glover & Sutton, 2012; Landy et al., 2012). It has been administered and evaluated within the USA (Kitzman et al., 1997; Olds, Henderson, Chamberlain, & Tatelbaum, 1986; Olds et al., 2002), Canada (Landy et al., 2012), and the United Kingdom (UK) (Robling et al., 2016). Results have yielded significant increases in healthy prenatal health behaviours such as reduced smoking and alcohol consumption, increased parental care post birth, and reductions in child abuse and neglect (Olds, 2008).

Not all studies utilising the NFP program have obtained positive results however. Robling et al. (2016) conducted a non-blinded randomised control trial in the UK. Participants were recruited from across 18 corporations licenced to deliver NFP and resulted in the inclusion of 1,645 first-time teenage mothers (*n*=823 in the NFP group; *n*=822 in routine prenatal care group). No significant differences were observed across the main outcomes of tobacco use throughout pregnancy and birthweight.

While conflicting results from NFP program studies exist, the outcomes did highlight that there are vulnerable groups when pregnancy is considered (teenage expecting parents being only one), and supported the assertion that exploration into how PPN parenting programs can best be designed and targeted to meet the specific needs of such groups, is a worthy investigation. Gaining a deeper understanding of women's' perceptions of the importance of attending PPN programs may further guide design and delivery of future programs.

**Women's perceptions regarding having access to PPN parenting programs.** To evaluate women's perceptions of the value of PPN parenting education, Hollins Martin and

Robb (2013) conducted a qualitative study that utilised thematic analysis. Postnatal women (*n*=228) provided verbatim feedback to questions on the Birth Satisfaction Scale (Hollins Martin & Fleming, 2011). Results varied—some indicated no need for PPN parenting education whilst others aligned with the perception that preparation is better (Hollins Martin & Robb, 2013). While the study looked at PPN parenting education in the scope of labour and birth and included mothers only, Hollins Martin and Robb (2013) did identify the lack of inclusion of fathers as an opportunity for further research.

Canadian researchers have also examined expecting mothers' use of prenatal education programs. Research has shown that two-thirds of women, pregnant for the first time, attended prenatal education programs (Public Health Agency of Canada, 2009). The cohort study of Godin et al. (2015) included 511 pregnant women in Ontario, Canada. It involved pre- and post-surveys of pregnancy related knowledge that focussed on healthy pregnancy, healthy lifestyle, and breastfeeding. The study required completion of a prenatal education program offered through seven public health units either online or in-person. Results indicated significant increases in knowledge across all three content areas ($p<.01$). However, only 2.3% of participants began the program in trimester one (Godin et al., 2015). Since this time period has been shown to be critical for healthy development of prenates, Godin et al. (2015) recommended that women access PPN parenting programs at this stage of the pregnancy. It was acknowledged that the motivation to learn about labour, birth, and breastfeeding may not be perceived as a priority by expecting mothers this early in the pregnancy (Godin et al., 2015). Therefore, program developers need to critically consider timing when each curriculum topic is scheduled for delivery, to ensure it is linked to the appropriate stage of pregnancy (Godin et al., 2015). Further, before designing future PPN parenting programs, it is necessary to understand why women choose to invest in healthcare education prior to conceiving.

To assess why women chose parenting education pre-conception, Barrett et al.'s (2015) study involved qualitative interviews with twenty pregnant women from London, UK. Each interview was completed either by telephone or in-person. Results indicated that the women who prepared and planned for pregnancy (e.g., taking folic acid, changing diet and lifestyle to support healthy pregnancy, attending classes to learn about pregnancy, birth, and becoming a parent) did so to create a foundation for positive birth and parenting outcomes (Barrett et al., 2015).

While research has shown that expecting mothers value PPN parenting program outcomes, the current dissertation was also interested in expecting fathers' perceptions of, and involvement, in these programs. The next section introduces the following: the importance of father involvement throughout pregnancy, the role that health practitioners can play in encouraging father involvement, societal perceptions, and barriers to father involvement. It also provides a non-exhaustive exploration of PPN parenting programs that have included fathers.

**Fathers as the primary focus in PPN parenting education.** The inclusion of fathers in PPN parenting education has advanced in the past 50 years. Modern-day fathers spend significantly more time with their children (Sayer, Bianchi, & Robinson, 2004) than their male counterparts in the 1960s and 1970s (Walsh et al., 2014). Broadly speaking, father involvement can include any activity engaged in that leads to an optimal pregnancy, birth, and beyond (Bond, Heidelbaugh, Robertson, Alio, & Parker, 2010). Inclusion of fathers in PPN parenting programs have had positive associations with attachment security (Heinowitz, 1995; Raikes et al., 2005), emotional regulation of the baby post birth (Korja et al., 2017; Roggman et al., 2004; Thomas et al., 2017), and on the child's cognitive development (Alio et al., 2010; Cabrera et al., 2007b; Nugent, 1991).

As well, adverse outcomes for pregnant mothers and their prenates have been shown to exist when fathers were not included in PPN parenting programs (Sahip & Turan, 2007). For example, without the support of the expecting father, a mother may be unable to use the knowledge and skills learned in prenatal classes. Therefore, fathers need to understand the value of these skills in terms of himself, his partner, and his prenate to support them (Roth & Mbizvo, 2001; Sahip & Turan, 2007).

With both positive and negative associations evidenced in current studies regarding fathers' role in pregnancies, encouraging and welcoming fathers to be actively involved may be essential.

**The role of health practitioners in including fathers.** Since the turn of the century, pregnancy and birth health professionals have increased their emphasis to directly encourage men to be more involved during the PPN time-frames (Plantin et al., 2011). Health practitioners have made progressive changes by including fathers in PPN parenting initiatives with positive outcomes that include: (a) an equitable division of labour in the household during pregnancy and post birth (Roth & Mbizvo, 2001), (b) fathers being prepared for birth (Shefner-Rogers & Sood, 2004), (c) emotional support of the mother (Hartmann et al., 2012), (d) encouragement and support of breastfeeding (Pisacane, Continisio, Aldinucci, D'Amora, & Continisio, 2005), (e) enhanced communication and satisfaction in the couple relationship (Gottman et al., 2004; Karney & Bradbury, 1995), and (f) enhanced role identity as a father early into a pregnancy (Plantin et al., 2011).

Integrating fathers into PPN parenting programs has resulted in documented positive impacts on fathers themselves, on a couple's relationship, and on the prenate, newborn, child, and beyond. However, difficulties continue to exist for health practitioners planning PPN parenting program content and delivery.

***Difficulties health practitioners face in including father.*** One of the difficulties commonly cited to account for a lack of male inclusion in PPN parenting programs is that the times sessions are typically offered coincide with work schedules (Humphries & Nolan, 2015; Moore & Kotelchuck, 2004). To overcome this, a six-session program designed for expecting fathers was offered in workplaces in Istanbul, Turkey (Sahip & Turan, 2007). The program content related to the following: health during pregnancy, pregnancy nutrition, birth, communication techniques, infant health care and feeding, fatherhood, and family health after birth (Sahip & Turan, 2007). Eighty expectant fathers completed six, three-hour group sessions, facilitated in their workplace by a trained in-house physician. Additionally, a control group of 80 expectant fathers were recruited from workplaces similar to those where the intervention group were employed.

Both the intervention and control group fathers participated in face-to-face interviews at three and nine months post birth. All were asked the same questions that directly related to topic areas in the program (Sahip & Turan, 2007). Results indicated that fathers from the intervention group were significantly ($p<.01$) more likely than those in the control group to report supportive behaviours (such as attending antenatal visits and helping with housework), support good nutrition for their partner, actively prepare for the birth, and make joint decisions for infant care with their partner (such as support for breastfeeding). One challenge researchers faced was resistance by some of the employers to release the fathers to attend the program sessions. This resulted in attrition from an original intervention group sample size of 90 to 80 (Sahip & Turan, 2007).

Research has consistently posited that fathers are less involved than pregnant mothers in PPN parenting programs (Billingham, 2011; Davis et al., 2016), which may or may not be attributed to their willingness to participate. Two aims of the current research project were: (1) to explore why expecting fathers may not choose to be involved, and (2) to better

understand the barriers that may exist for fathers wanting to participate. These aspects were explored in Studies 1, 2, and 3.

Barriers may be defined as physical, such as not being able to leave work to attend programs (Sahip & Turan, 2007); financial (cannot afford to take time off from work), emotional (fear, insecurity, anxiety), and socio-cultural where having babies is seen as women's' work (Davis et al., 2016). Socio-cultural norms appear to play a significant role in expecting fathers' participation in PPN parenting programs, impacting program content, accessibility, and delivery.

**The influence of socio-cultural norms on father attendance at PPN parenting programs.** The trend of lack of male involvement in child health services and pregnancy education programs is common in the Pacific region (Davis et al., 2016). This is largely due to expecting fathers not being actively engaged by services, along with the socio-cultural norms that pregnancy, child-bearing, and raising a child is a woman's role (Davis et al., 2016). This perspective is not isolated to the Pacific region; it has been consistently found to apply in the Western world (e.g., USA, Alio, Bond et al., 2011). There has been a perceived socio-cultural legacy of men attaining a position of power by maintaining the inequity in pregnancy and post birth emotional and practical support, to partners and their children (Alio, Bond et al., 2011; Brotherson, Dollahite, & Hawkins, 2005). These traditional outlooks are aligned with Connell's (1995) Gender Theory that was built on the premise that the "social structure of gender is a way of structuring social practice" (p. 81); the position of power is one of the theory's core elements. Connell (1995) supported the belief that men have historically been accustomed to holding a patriarchal dominant role in society and that this is changing. Specifically, there has been more compromise and negotiation between men and women in relationships and this has led to more equal participation in family-related duties (Connell, 1995).

In a semi-structured, in-depth interview study conducted in the Pacific region in 2011/2012, mental and child health policymakers and practitioners (*n*=18) responded to a series of interview questions (Davis et al., 2016). The aim was to learn more about perceived benefits, challenges, and risks to increasing fathers' involvement in pregnancy and child-related services and programs offered in the region (Davis et al., 2016). Thematic analysis revealed that across respondents there was agreement that increasing the engagement of men is important; culturally they are the decision makers for family health matters. Therefore, if they became informed about risks and problems mothers and babies can face during pregnancy and beyond, fathers could make pro-health decisions, such as enabling the mother to attend programs and antenatal care (Davis et al., 2016).

Davis et al. (2016) suggested one barrier to success of engaging fathers is that prenatal health care centres are typically under-resourced; reaching out to fathers is a low priority given the cultural trend that it is women's business. This has been coupled with health worker attitudes in support for the cultural stereotype (Davis et al., 2016). Additional barriers cited included inflexible clinic hours (clashed with times that fathers were at work), and content that did not focus on the fathers' perspectives or their needs (Davis et al., 2016).

Davis et al. (2016) proposed five recommendations for consideration when designing future maternal and child health services and PPN parenting programs: (a) offering sessions for fathers only during work breaks; (b) holding classes at times fathers would be open to coming to (e.g., *grog* sessions where fathers can talk together in a social environment whilst drinking a few beers); (c) instigating group talks among fathers so they can share their experiences, fears, needs, and seek support; (d) incorporating fathers in discussions when both mothers and fathers attend a session, by contextualising how concepts being spoken about relate to him as a father; and (e) having male facilitators.

Sweden is one country where the cultural norm has been to focus on active and equal parenting, thereby actively reducing barriers expecting fathers face. Social policy on parental leave was amended in the 1970s so that men received equal rights to stay at home with their children (Plantin, Mansson, & Kearney, 2003). In a qualitative interview study involving 30 Swedish couples, all men were pro gender equality and stated a desire to have shared responsibility in the context of family duties and wanted to be "tender, "open", "fair" and "supportive" of their partner and child/ren (Plantin et al., 2003). This suggested that when considering Gender Theory, social practice can be amended as an outcome of males being aligned with equality. Swedish social policy—having fathers equally involved in family care—is evidence of this. Such equality is not consistent amongst all Western cultures, with only 13% of employers in the USA providing extended paternity leave that consists of leave greater than the 12 weeks unpaid leave available as a standard (Bond, Galinsky, Kim, & Brownfield, 2005).

Two focus areas that PPN parenting programs designed for fathers only have included are paternal anxiety and young fathers (aged between 15 and 25 years at the time of the baby's birth). They are discussed separately below.

***Program focus: Paternal anxiety.*** The need for father involvement in PPN parenting programs has been the focus of research in an attempt to mitigate paternal anxiety (e.g., Charandabi, Mirghafourvand, & Sanaati, 2017; Condon, 2006). The literature postulated that it is common for fathers to feel anxiety and apprehension during the transition to parenthood (Condon, 2006). If prolonged, it can negatively affect a father's ability to bond with his baby (Bögels & Phares, 2008). A repeated measure, randomised cohort study was undertaken in Perth, Western Australia, and aimed to identify the impact of fathers' participation in a PPN parenting program (Tohotoa et al., 2012). The study addressed subsequent levels of anxiety in the postnatal time and anxiety was measured using Hospital Anxiety and Depression Scale

(HADS) (Tohotoa et al., 2012). The intervention group (n=289) received routine antenatal classes along with one-hour sessions for fathers only, that were facilitated by male educators at each antenatal class. Program content focussed on the role of the father, breastfeeding, and managing expectations for infant care (Tohotoa et al., 2012). The control group (n=244) attended the routine antenatal classes only. At six weeks post birth, results showed a statistically significant reduction in self-reported anxiety by fathers from the intervention group. Qualitative feedback revealed that 96% of fathers in the intervention group perceived the father-only sessions as positive (e.g., "practical information of what to do", "great to talk to other fathers") (Tohotoa et al., 2012). The authors concluded that postnatal anxiety for fathers could be reduced as an outcome of timely and relevant pregnancy and post birth information being shared (Tohotoa et al., 2012).

The control group from Tohotoa et al.'s (2012) study experienced a marginally significant reduction in anxiety ($p<.04$) between baseline and six weeks post birth. This result was not consistent with previous literature where HADS had been utilised to measure anxiety in fathers pre- and post-birth (e.g., Liber et al., 2008). Whilst not within the scope of the current research project, future research could repeat the study targeting a larger cohort, to determine if greater effect sizes between treatment and control groups become evident when measuring change in paternal anxiety.

***Program focus: Young fathers.*** The inclusion of young fathers (aged between 15 and 25 years at the time of the baby's birth) in PPN parenting programs has received attention in Canada. This was primarily in response to social stigmas that suggested attending PPN programs and services was seen as a sign of failure and neediness (Deslauriers et al., 2012). Specifically, the Perinatal and Infancy Program (Ministere de la Sante et des Services Sociaux, 2004, as cited in Deslauriers et al., 2012) was designed to target the needs of young fathers. Program delivery was creative, flexible, and informal to ensure young men were

engaged and felt comfortable to attend. These modifications included the following: arranging informal gatherings of young men in their homes and at sporting venues; having sport and outdoor activities as a part of the program to build trust, social connections, and comradery; and having group discussions and an experiential focus to discuss the content (e.g., views of fatherhood, goals as fathers, parenting skills, role identity, child development principles, how to support the mother) (Kiselica, 2008).

To learn more about young fathers' needs and experiences with pregnancy related services, Deslauriers et al. (2012) devised a qualitative study that was undertaken in the provinces of Ontario and British Columbia, Canada. The study involved interviews ($n$=15) and five focus groups ($n$=28) of young fathers (mean age = 24.8 years). Upon completion of thematic analysis, results revealed that young fathers: (a) felt negatively judged by support services aimed at pregnancy care and that they were not taken seriously; (b) had a need to have somebody to talk with for guidance as a father and also to receive positive reinforcement when they did a good job (consistent with Behaviour Modification Theory); (c) had a desire to meet regularly with other fathers and a facilitator, to discuss challenges; and (d) did not feel as though their emotions were taken into account during a pregnancy and beyond (Deslauriers et al., 2012). The authors suggested future programs that target young fathers ought to take their needs and emotions into account and be delivered by facilitators and services that can remain judgment free. Determining father-specific needs in the context of PPN parenting programs was explored in Study 3 of the current research. This was achieved by using Delphi methodology (see Chapter 7 for detailed definition) with an expert parent panel.

The third and final cohort of interest in the current research was couples, in the context of transitioning from being a partner to a parent. The rationale for interest is detailed

below, along with a discussion of PPN parenting programs that have targeted couples during this transition.

**Couples as the primary focus in PPN parenting interventions.** Research focussing on the transition to parenthood for mothers and fathers as a couple did not emerge until the late 1950s. LeMasters (1957) initially claimed that "83% of new parents have experienced moderate to severe crisis in their marital and family life in the first year following the birth of their first child" (Cowan & Cowan, 1995, p. 412). Laycock (1967) also argued that crisis is common, as human beings are the only species who do not have innate knowledge of human development or of what is required to successfully transition into the role of a parent. To evaluate the rigor of LeMaster's (1957) claim, a range of studies were completed during the 1960s to 1980s with inconclusive results. Findings varied between the assertion that whilst the transition to parenthood is stressful, it is also manageable (e.g., Hobbs & Cole, 1976) and that no difference was found in the decline in marital satisfaction between couples with, and without, children (MacDermid, Huston, & McHale, 1990; White & Booth, 1985).

Much research has been conducted with consistent and comprehensive findings over the past 25 years. Examples include: (a) the transition to parenthood, as a developmental life change, can reduce resources a parent has such as time to access valued support people like family and friends (Crawford & Huston, 1993). This can amplify pre-existing challenges such as marital discord (Hinde & Stevenson-Hinde, 1988); (b) a baby's growth and development may be less than optimal if stress and distress is present in the couple's relationship during the pregnancy and beyond (Cowan, 1992); (c) less quality and intimate time shared by couples (LaRossa & LaRossa, 1981; Osofsky & Osofsky, 1984); (d) the tendency for couples to move into more traditional gender roles (Katz-Wise, Priess, & Hyde, 2010). This is associated with the perception of unfairness in how parenting and household duties are distributed, leading to decline in relationship satisfaction (Goldberg & Perry-Jenkins, 2004);

and (e) increased risk of depression in both males and females (Cutrona & Troutman, 1986; Goodman, 2004; Tohotoa et al., 2012).

Evidenced by the growth in the current literature, potential challenges, can and do, accompany a couple's transition to parenthood. Therefore, providing skills to successfully sustain a healthy and satisfying relationship seems pertinent. Two studies that investigated evidence-based programs targeted to pregnant couples are explored next.

**Evidence-based couple focussed interventions.** Pinquart and Teubert (2010) completed a meta-analysis of 21 couple focussed interventions (*N*=1230 for parent intervention group participants; *N*=1109 for control group participants). Each utilised expecting and new parent samples and examined effects of randomised controlled trials that focussed on advocating effective parenting in the transition to parenthood. To be included in the meta-analysis, Pinquart and Teubert (2010) stated that five criteria needed to be met:

1. The study incorporated a control group,
2. Intervention had to have couple focussed components,
3. The intervention had to be delivered either during pregnancy or up to six months post birth,
4. Effect sizes needed to be able to be compared, and
5. There had to be at least one publication about the study available.

One initial study that focussed on couples during the PPN time frame was undertaken in the early 1970s (Leibenberg, 1973). At the time of publication, studies were included up until 2010. Interestingly, only 14 of the programs investigated (67%) included both mothers and fathers. A further six utilised mothers only (29%), and one (4%) used a father sample exclusively. Programs were equally distributed between their delivery being undertaken before birth, post birth only, and spanning both time periods. On average, programs involved 11.4 sessions. Results consistently revealed very small effects being observed for couple

adjustment (*d*=.09) and communication between couples (*d*=.28) (Pinquart & Teubert, 2010). This suggested that an opportunity may exist to improve the effectiveness of programs for couples transitioning to parenthood. The low effect sizes observed were consistent with previous universal prevention-based programs that were designed to reach large populations (Burig, 2002). Overall, couples had greater improvements when the program met three criteria. Firstly, the program had more than five sessions. Secondly, content focussed on education and skills for both pre- and postnatal times. Thirdly, delivery of the program was led by a professional trained in PPN parenting education and facilitation, as opposed to a semi-professional (Pinquart & Teubert, 2010).

Results from these studies bring to light positive shifts during the past 20 years in content and delivery of PPN parenting programs. More emphasis has been made to include both mothers and fathers in parenting programs as well as adding skills to enhance the couple relationship to enrich the mother, father, and baby relationship during the transition to parenthood (Nolan, 1997). Along with these changes, two consistent areas of focus in current PPN parenting programs that target both mothers and fathers as a couple, include relationship adjustment post birth and couple psychoeducation.

***Program focus: Couple relationship adjustment post birth.*** Van de Carr and Lehrer's (1988) study examined the Prenatal University program, designed for couples. The program emphasised the importance of the father being actively engaged with the baby via the use of prenatal stimulation strategies, such as auditory and tactile using voice, music, and touch via hands and lips on the stomach. It was found that mothers perceived these types of interactions involving the father and prenate as a layer of support. It also kept fathers from feeling emotionally isolated during pregnancy (Van de Carr & Lehrer, 1988). These authors shared that the program was designed so that both the mother and father could equally relate and interact with their prenate before birth. The aim was to strengthen bonding between the

mother, father, and baby triad. The authors found that couples (*N*=1,000 at the time of publication) who embraced the program, had increased intimacy together as an outcome of connecting with the prenate through pregnancy by using the range of stimulation techniques stated above. Results spanning seven years showed both positive bonding experiences and positive interactions between parents and their child (Van de Carr & Lehrer, 1988).

More recently, adjustment within a couple's relationship as they transition to parenthood has been explored. Halford et al.'s (2010) two-group intervention study measured couple relationship adjustment post birth. Australian parents expecting their first child were randomly assigned to either the Couple Care for Parents (CCP) program or the Becoming a Parent (BAP) program. Thirty-five couples completed the CCP program, which involved six units that incorporated an antenatal workshop facilitated by the lead author in a clinic. Participants also completed five self-directed units in their home. The entire program required 17 hours of time starting at the 32nd week of gestation to three months post birth (Halford et al., 2010). The BAP program involved mothers only (*n*=36). Content was derived from literature and did not include material that focussed on couple relationships. It did deliver the same content on antenatal aspects as in CCP; however, it was completed via one home visit and five telephone calls. The entire program took five hours to complete. Respondents in both groups completed a battery of pre, post, and 12-month follow-up intervention surveys measuring adjustment, couple communication, and consumer satisfaction (Halford et al., 2010).

Results indicated that CCP reduced negative couple communication, and for women only, prevented negative relationship adjustment. No differences were found for parenting adjustment between CCP and BAP. The authors concluded that CCP showed promise for couple relationship education during pregnancy (Halford et al., 2010). However, limitations

included the absence of a control group and delivery of all sessions by the lead author only, which may have biased results due to therapist expectations.

The Department of Health in the UK recently commissioned a study that utilised expert opinions from a reference group that included a cross section of mothers, fathers, and professionals (Billingham, 2011). The goal of the study was to generate recommendations for future programs and services that targeted pregnancy, birth, and beyond (Billingham, 2011). A summary of the expert group's perception of key points to consider when creating a program for preparation for parenthood included: addressing emotional, psychological, and biological changes for the mother; providing information on developmental milestones of the growing prenate; empowering parents to feel in control of their pregnancy and birth; and addressing the needs of the father as well as recognising his needs may be different to the mother (Billingham, 2011).

Based on the participating experts' feedback, Billingham (2011) proposed a framework for intervention that comprised six core themes:

1. The development of my/our baby,
2. Changes for me and us,
3. Our/my health and wellbeing,
4. Giving birth and meeting my/our baby,
5. Caring for my/our baby, and
6. People and services that are there for us.

Each of the themes incorporated a menu of needs-based topics that participants selected from, depending on their unique circumstances. Billingham (2011) stated that the study was the first step in creating prenatal education that had relevance to expecting parents. The key points for inclusion in future programs identified above, were incorporated into the online questionnaires used in the parent and birth professional Delphi methodology studies of

this dissertation (see Chapters 7 and 8), for consensus rating. This was done in response to no follow up studies being found in the current literature to determine if a PPN parenting program had been created that incorporated the recommendations identified.

Partner relationship satisfaction as a result of the transition to parenthood has been researched as another aspect of couple relationship adjustment. Specifically, Mortensen et al. (2012) conducted a Norwegian-based mother and child cohort study that spanned a decade (1999-2009). The study involved 71,504 pregnant women. Results revealed that mothers who had given birth for the first time whilst involved in the study reported statistically significant higher levels of relationship satisfaction at the time of childbirth ($p<.001$), than mothers who had previously birthed. Further, having a planned versus unplanned pregnancy resulted in higher relationship satisfaction at the time of childbirth ($p<.001$). Lastly, married mothers reported higher levels of relationship satisfaction after transitioning to parenthood at the time of childbirth, than did mothers who were in defacto relationships ($p<.001$) (Mortensen et al., 2012).

Regardless of the differences between groups, there was a statistically significant decline in relationship satisfaction post birth ($p<.001$) for all participants (Mortensen, et al., 2012). This result was consistent with earlier literature (Hanson, 1985; Simbar, Nahidi, Tehran, & Ramezankhani, 2010). The authors recommended future interventions also include fathers for two reasons. First, to learn more about fathers' needs during the transition to parenthood. Second, to ensure content is included that focusses on ways couples can harness relationship satisfaction throughout a pregnancy and beyond (Mortensen et al., 2012). The current research project aimed to extend the existing literature that has focussed on expectant fathers' needs and was examined in Studies 1, 2, and 3. In the next section the second area of focus, couple psychoeducation, is discussed in the context of current PPN parenting programs.

***Program focus: Couple psychoeducation.*** Halford and Petch (2010) championed the concept of Couple Psychoeducation (CP) during the transition to parenthood and found that responsiveness of parenting is linked to the extent to which a couple can be supportive of one another. CP has been defined as "any educational attempt to enhance couple relationship functioning or parenting or to prevent relationship deterioration, after the birth of a first child" (p. 164). Another term used in the literature closely associated to CP is Couple Relationship Education (CRE). The focus is similar regarding sharing knowledge, attitudes, and skills that aim to help couples sustain their relationship post birth in a healthy way (Petch, Halford, Creedy, & Gamble, 2012).

The essence of CP (and CRE) can be linked to Attachment Theory. CP (and CRE) was based, in part, on building the skills of sensitive-responsiveness, defined as the caretaker's ability (traditionally the mother) to accurately interpret the infant's needs and respond appropriately and in a prompt timeframe (Ainsworth et al., 1978). The literature has consistently supported the belief that the mother's ability to be sensitive-responsive to her infant is linked to positive outcomes involving: cognitive and language development (Brooks-Gunn, Han, & Waldfogel, 2002), emotional self-regulation ability (Belsky, Youngblade, Rovine, & Volling, 1991; Blasco, 2003; Korja et al., 2017; Thomas et al., 2017), healthy neurological networks due to oxytocin and serotonin being released (Bavolek, 2016), heightened self-worth (Bavolek, 2016), and enhanced secure attachment that extends to future adult relationships (Cassidy & Shaver, 1999; van Bussell, Spitz, & Demyttenaere, 2010; Young, 2013).

In mother-only samples, sensitive-responsiveness has been shown in meta-analyses to be significantly correlated with secure attachment when effect sizes are considered ($r$=.24-.32) (e.g., Atkinson et al., 2000). Further, significantly enhanced secure attachment by infants aged birth to four years ($p$<.01) has been found in controlled trials where parental-

responsiveness to the infant increased as an outcome of engagement in behavioural-based parenting interventions ($p<.001$) (Bakermans-Kranenberg, van IJzendoorn, & Juffer, 2003). Whilst research conducted in the past decade has started to recognise that a father's ability to be a sensitive-responsive parent is also an important influencing factor for infant development (Elliston, McHale, Talbot, Parmley, & Kuersten-Hogan, 2008; Korja et al., 2017), the literature is limited.

As previously discussed, a decline in relationship satisfaction during the transition to parenthood is common. One consequence is that the decline is associated with negative parenting practices such as low sensitivity-responsiveness to the infant (Halford & Petch, 2010). For couples who have the skills to communicate positively, to collaborate as a team when parenting (Gordon & Feldman, 2009), and to individually make an effort to sustain the relationship (Halford, Markman, Kline, & Stanley, 2003), research has shown a positive association with reduced stress, secure infant attachment, and positive co-parenting that was built on the premise of both parents being sensitive-responsive to the infant (Florsheim et al., 2003).

Halford and Petch's (2010) meta-analysis of CP programs offered to pregnant couples, examined the effects CP programs have on couple relationship and adjustment to parenting. Only seven randomised trial studies that reported on couple satisfaction were included (for a full summary of studies included see Halford & Petch, 2010). Results showed that programs varied between five to 10 sessions and ranged from one to two hours duration each. Content varied from infant care by fathers (Doherty, Erickson, & LaRossa, 2006) to the couple relationship and parenting (Cowan & Cowan, 1995; Halford et al., 2010). Five of the seven studies found positive change in couple relationship satisfaction pre and post, when measured via scales (e.g., Children and Parenting subscale of PREPARE Inventory). In all instances the majority of program content focussed on the couple relationship during the

transition to parenthood (Halford et al., 2010; Kermeen, 1995; Midmer, Wilson, & Cummings, 1995; Schultz et al., 2006; Shapiro & Gottman, 2005). Halford and Petch (2010) concluded that CP programs can enhance the experience of transitioning to parenthood. However, to be of optimal effect, the authors argued that future programs need to include content that is focussed on: infant care, parenting expectations, communication and conflict management skills, maintaining affection and intimacy post birth, and mutual emotional and practical support and increased social support. Halford and Petch (2010) observed that timing the delivery of existing CP programs in the fourth trimester was a limitation, as attendance was often low, given time limitations for new parents (Petch & Halford, 2008).

Future research that trials CP programs during the prenatal time may be warranted; the literature has supported that this can be an impactful time for the mother, father, and prenate alike. Four key examples of possible impacts have been identified. The first is neural development of the prenate (Castillo, Welch, & Sarver, 2011; Schore, 2000). The second is attachment predisposition between parents and their babies (Eichhorn, 2012; Martin, 2003). Third, genetic engineering (Janov, 2009; Lipton, 2008; Weinhold, 2012); and fourth, the couple relationship, as expecting parents prepare to transition away from a partner relationship to a parenting one (Billingham, 2011; Schulz et al., 2006). To further explore possible impacts of CP programs, the research studies conducted in this dissertation utilised online questionnaires to address the perception of need for education (knowledge and skills) relating to couple relationship enhancement throughout the time of pregnancy.

**Summary**

PPN parenting education has evolved to meet the needs of expecting parents and to ensure best outcomes for families. In the earliest examples, teachings were transmuted from woman-to-woman via the family unit across generations. Over time, programs progressed to include midwives and parenting advice books. More formalised childbirth education was then

offered with curricula, certification, and licensing being required to deliver education to parents. Focus expanded to incorporate natural pain management exercises (i.e., Lamaze) as a part of education for navigating labour and birthing processes.

A natural progression for PPN parenting programs was the call to incorporate solid theoretical underpinnings. The intention was to include sound methodology in the design and delivery of programs and to ensure factors of interest could be consistently and reliably measured.

A tendency across time has been for PPN parenting programs to be offered in the final trimester of pregnancy. Technology has enabled the ability to be flexible in timing as well as the mediums for delivery of education allowing for widespread accessibility at any time during a pregnancy. Exploring the most effective times throughout a pregnancy to share information provides an opportunity for investigation.

Three categories of consumer groups have been consistently discussed in the literature. They included mothers-only, fathers-only, and expecting couples. Challenges were identified in studies involving each of these groups that could be addressed by future research. These included (in no particular order):

1. The inclusion of the father in PPN programs to become the *norm*;
2. Targeting PPN programs to focus on strengthening the couple relationship in preparation for the transition to parenthood (e.g., the inclusion of CP programs);
3. Incorporating knowledge and skills on how couples can create a sustainably healthy lifestyle for themselves and the prenate from conception onwards;
4. Increasing the sample sizes utilised in studies to enable greater generalisability;
5. Strengthening methodological procedures to include control groups;
6. Understanding and exploring evolving theories that are relevant in explaining influencing factors on the prenate during the PPN time to birth educators and parents;

7. Exploring factors that parents and birth professionals deem as essential for inclusion (or exclusion) in PPN parenting programs moving forward. This could ensure the foundation for positive transition into parenthood is solid and relevant to modern times;
8. Determining the most effective ways to disseminate PPN parenting programs to disadvantaged groups;
9. Educating people wanting to conceive and parents who are already expecting, of the value in PPN parenting programs as well as where to access programs, interventions, information, and resources; and
10. Understanding the most appropriate timing of a pregnancy to engage expecting parents in PPN parenting programs.

**The Present Project**

To address the limitations highlighted in the previous research and to enhance outcomes for expecting parents, the four studies in the current research project sourced expert opinions to inform relevant and effective suggestions for the design, development, and delivery of future PPN parenting programs.

Studies 1 and 2 examined the perceptions and opinions of mothers (*n*=54) and fathers (*n*=7). The main aims of these studies were to gain respondents' subjective views regarding the focus of future PPN parenting programs to be of benefit when transitioning to parenthood and to mitigate stressors that may impede a smooth transition. This data was then used to inform questions for inclusion in Studies 3 and 4, that utilised Delphi methodology with both expert parent and birth professional panels. Each study is discussed in detail in Chapters 5, 6, 7, and 8 respectively. The findings from all four studies are discussed in Chapter 9 along with potential suggestions and solutions for future PPN parenting programs.

**The Next Chapter: The importance of fathers**

Expecting fathers have gained importance in PPN parenting education. Research has focussed on their role in the family unit, pre-birth, during birth, after birth, and beyond. Given this current trend, modern-day PPN parenting programs must include information of value to fathers, mothers, the couple in transition, and their offspring. The next chapter thus highlights current information on the importance of fathers.

# Chapter 3: The Value of Fathers Willing and Wanting to Participate in PPN Parenting Programs

A review of the literature that explored males' transition to fatherhood revealed that attitudes regarding fathering and fathering practices have undergone significant changes in recent times, with contemporary fathers being more hands-on with their children (Plantin et al., 2011; Sayer et al., 2004). Encouraging fathers' involvement in PPN parenting programs is important, as it yields benefits such as improving the harmony and cohesiveness of family environments, which has positive benefits on the wellbeing of both children (Sayer et al., 2004) and the family unit (Vanska et al., 2017). Further, it has been hypothesised that when birth professionals involve fathers during the time of gestation prenates' neurodevelopment can be enhanced (Jackson, 2017). However, the belief that fathers should be involved in PPN parenting programs has not resulted in their successful recruitment, as fathers are still less included and participative than mothers (Deslauriers et al., 2012; Piotrowska et al., 2017; Plantin et al., 2011). Consequently, the aim of this chapter is to build on the discussion from Chapter 2 on the benefits of father involvement for the mother, father, and baby triad. This chapter examines role identity for men, the importance of fathers, and barriers to fathers being involved in PPN parenting programs with identified solutions.

## Introduction

The role of the father in the 21st century is complex and multifaceted, whereby expected traditional duties such as being a financial provider (Zvara, Schoppe-Sullivan, & Dush, 2013) have shifted and expanded resulting in some men feeling unprepared for fatherhood (Condon, 2006; Zvara et al., 2013). Diversity in role function for fathers includes factors such as the ability to offer emotional support and nurturing to their partner, and co-parenting (Zvara et al., 2013) and as a result, fathers have conveyed feeling challenged during the role transition from being a partner to a parent (Davis et al., 2016; Heinowitz, 1995).

Additionally, men have reported finding fatherhood to be overwhelming and frustrating (Premberg, Hellstrom, & Berg, 2008), difficult (Nolan, 2015), and an ambiguous and uncertain experience (Ponzetti, 2016) that can leave them feeling unprepared for fatherhood (Shorey et al., 2017). With contemporary mothers and fathers both often being active in the workforce, the need for the equal sharing of responsibility within the home has been identified (Dabrassi, Imbasciati, & Vedova, 2010; Hanson, 1985; Kaye et al., 2014; Rosand, Slinning, Eberhard-Gran, Roysamb, & Tambs, 2011). In instances where shared workload has not been achieved, mothers have reported feeling role overload and dissatisfaction in their partner relationship (Hanson, 1985; Plantin et al., 2011; Rosand et al., 2011).

From as early as the 1950s the transition to fatherhood has been reported as a developmental crisis which can result in changes in self-perception of identity (Benedek, 1959; Heinowitz, 1995). Naziri and De Coster (2006) suggested that integrating the new identity of being a father can be arduous and heavily influenced by social value and cultural norms (e.g., pregnancy and child rearing being a woman's role, Davis et al., 2016). Naziri and De Coster (2006) further stated that men benefit from being supported through this developmental stage of life. Plantin et al. (2011) concurred, advocating that men be given tools to be able to develop their identity as fathers as early as possible once a pregnancy has been discovered, for the father's, mother's and developing baby's needs to be met. The literature pertaining to the transition to fatherhood considers numerous theories which will be discussed throughout this chapter.

**Role Identity for Men Transitioning to Fatherhood**

As fathers do not experience the felt-sense physical aspect of a pregnancy (Habib & Lancaster, 2006), this can stimulate a need to seek evidence that they are productive and useful in other ways, such as extended work hours and/or exploring opportunities to increase financial capability within the household. As a result, when expecting mothers perceive a

decline in the emotional support provided by fathers, a disconnection in the primary partner relationship may occur (Heinowitz, 1995; Klaus & Kennell, 1982; Mortensen et al., 2012). Jealousy on the part of the father and neglect or less attention towards the mother can be common (Heinowitz, 1995, 2001).

Habib and Lancaster (2006) proposed that seeking ways to be productive can lead fathers-to-be to become preoccupied about their emerging identity as a father. In a study that included 115 first-time fathers to-be in Australia, the framework of McCall and Simmon's (1978) Identity Theory was examined (Habib & Lancaster, 2006). It was hypothesised that men were more likely to engage in *father-like* behaviours when their self-concept of the father-role was more dominant than any other life roles they had (e.g., son, worker, and colleague). Examples of *father-like* behaviours included: attending prenatal classes with their partner, supporting their partner emotionally and physically during pregnancy, being an active participant at birth, engaging in shared parenting responsibilities post birth, and playing and engaging with baby. These behaviours were suggested to positively influence father-baby bonding (Habib & Lancaster, 2006).

Habib and Lancaster's (2006) qualitative study required each participant to read seven vignettes and rate their level of identification to the *father-like* behaviours (e.g., emotional supporter of the mother, a breadwinner) that were presented within each vignette. The results showed that for men who perceived fatherhood as the prominent role in life, there was a statistically significant positive correlation with bonding to the prenate in-utero ($p<.01$). Conversely, if the expectant father identified with being a "coach for the baby", "helper to their partner", or "breadwinner", then pre- and postnatal bonding to the prenate was low, based on fathers' self-reports. Habib and Lancaster (2006) suggested that this outcome may be due to lack of an emotionally driven identity in relation to the prenate, and was in support of McCall and Simmon's (1978) Identity Theory.

There were two key design limitations to Habib and Lancaster's (2006) study. The first was the lack of reliability and validity of the vignettes. The authors acknowledged that the research could be replicated utilising empirically-based versions of the vignettes. Whilst vignettes were not used in the current research, Delphi methodology was in Studies 3 and 4. The research questions that shaped these two studies were derived from the existing PPN parenting program literature, in an effort to maximise reliability and validity of subsequent findings. The second limitation of Habib and Lancaster's (2006) study was that the respondents completed the study based on their perceptions of how they *would* fulfil the role of a father once the baby was born. This may not have been an accurate reflection of reality post birth, and data in relation to this aspect was not measured. Consequently, cause and effect could not being determined. The second limitation was addressed across all four studies of the current dissertation. Specifically, both parent participants (in Studies 1, 2, and 3) and birth professional participants (in Study 4), completed online questionnaires that asked for responses to questions based on their direct experiences, as opposed to hypothetical perspectives of involvement in PPN parenting programs.

Further research is needed to determine if the degree of father-baby bonding changes across time, as the transition to fatherhood expands beyond the time of pregnancy. Additionally, to improve the generalisability of findings across populations, the study could be replicated using samples from countries other than Australia (Habib & Lancaster, 2006). To maximise generalisability of findings in each of the four current studies, participant samples were sought globally, through recruitment via social media.

**Role Theory.** Role Theory is a framework for conceptualising the role of fathers, used in the domain of social psychology (Biddle, 1986). This theory is based on the premise that roles are socially defined categories (e.g., mother, father, leader, son, and daughter). Further, each role has a socially and culturally predetermined set of expectations, behaviours,

beliefs, and duties that a person in a particular role is expected to fulfil (Biddle, 1986). Roles are defined as expectations of self and others about behaviours required to fulfil a particular situation (Boyd, 1985). According to Hanson (1985), every role has complementary roles which may lead to stress if difficulty arises between the roles. For the father role, examples of complementary roles are partner and financial provider.

A transition to a new role (e.g., from partner to father) can be associated with challenges. Examples include a lack of motivation and/or lack of self-confidence in ability to become a father (Habib & Lancaster, 2006; Lamb, 2004), and paternal anxiety and apprehension during the transition to fatherhood (Charandabi et al., 2017; Condon, 2006). Specifically in the context of Role Theory, challenges include role loss or role insufficiency that is characterised by not being prepared and/or not wanting to take on the role (Hanson, 1985). If challenges are not resolved, sub-optimal consequences for the father, mother, and baby triad may result. Such negative outcomes may include: (a) the father experiencing an inability to bond with the baby (Bögels & Phares, 2008; Della Vedova & Burro, 2017) and/or experience paternal anxiety (Charandabi et al., 2017; Condon, 2006); (b) the expectant mother experiencing increased anxiety and depression (Fletcher, Matthey, & Marley, 2006) and/or emotional distress (Martin, McNamara, Milot, Halle, & Hair, 2007); and (c) the baby being impacted by way of decreased social and cognitive development (Castillo et al., 2011), and/or reduced time being breastfed (Humphries & Nolan, 2015).

According to Role Theory, in order for men to accept the role of father and successfully make the transition to fatherhood, the perceptions of the positive aspects of the new role need to outweigh the costs (Hanson, 1985). PPN parenting programs designed to target expectant fathers and be delivered in a way to directly meet their needs could address this challenge (Bond et al., 2010; Davis et al., 2016). Hanson (1985) suggested that role modelling, socialisation with other fathers, and role rehearsal may be beneficial. Kiselica

(2008) further posited the inclusion of content that focusses on parenting goals, role identity, and teaching fathers how to best support the mother of their children. Relevance of these content suggestions for modern-day PPN parenting programs were explored in Study 3 and outcomes are detailed in Table 21 (Chapter 7, p. 218).

**Father Involvement Model.** The Father Involvement Model has been widely used by researchers investigating the role fathers play during the pregnancy, birth, and the fourth trimester. This model focusses on three types of involvement:

1. Accessibility—whereby the father makes themselves available to their child both psychologically and physically.
2. Engagement—where a father actively engages with his child one-on-one.
3. Responsibility—where a father takes on the role as a parent and assumes responsibility for his child (Lamb, Pleck, Charnov, & Levine, 1987).

Zvara et al. (2013) conducted a survey and interview-based study that incorporated two aspects of the Father Involvement Model, *engagement* and *responsibility*. The study included 182 couples, who were first-time mothers and fathers, based in the USA. Data collection spanned the timeframes of trimester three, as well as three, six, and nine months post birth. Regression analysis showed that a father's prenatal involvement was a significant predictor of his postnatal engagement and responsibility taking ($p<.01$) (Zvara et al., 2013).

A review of the literature that has evaluated the Father Involvement Model revealed that barriers exist when considering the factors of *engagement* and *responsibility*. Barriers included the belief that a mother was responsible for engaging and caring for a child, lack of self-confidence by men in how to parent effectively, and the perception that role of males was to be at work (Moore & Kotelchuck, 2004). Each of these barriers detracted from fathers attending PPN parenting programs and appointments for pre- and postnatal care (Moore & Kotelchuck, 2004). These results showed support for gender roles being a considerable factor

in a father's motivation for engagement during the transition to parenthood (Lamb et al., 1987). Risks associated with lack of engagement by fathers included a more challenging transition to parenthood and lower levels of commitment towards the partner and child (Bäckström & Hertfelt Wahn, 2011; Castillo et al., 2011).

Research has examined the impact of fathers' engagement based on exposure to PPN parenting programs. Specifically, in a qualitative study conducted in England, 5,333 mothers completed questionnaires that asked about the father's engagement during pregnancy, labour, and post birth (Redshaw & Henderson, 2013). Results indicated that greater post birth paternal engagement was observed in fathers who had their first exposure to a pregnancy health professional prior to the end of the first trimester of pregnancy (Redshaw & Henderson, 2013). This provided some evidence for the need to determine the most effective time and ways to engage fathers in PPN parenting program initiatives and was examined in Studies 3 and 4.

**Social Learning Theory.** Social Learning Theory (SLT; Bandura, 1977) is founded in the underpinning philosophy that humans learn through imitation, modelling, observations, and discussions. These principles of SLT can be applied in the context of design, development, and delivery of PPN parenting programs. That is, expecting mothers and fathers may learn best when engaging in supportive environments, where they are shown the skills required for good parenting (Carlson, Edelson, & Kimball, 2014). When applied to men as they undergo the transition to fatherhood, SLT posits that men learn to become fathers by being in the presence of other fathers and being able to engage, interact, and be social with them in a learning environment (Marsigilio, 1997). Given that becoming a father is often a time of confusion and involves feelings of low confidence and uncertainty about how to parent (Redshaw & Henderson, 2013; Tohotoa et al., 2012), men receiving support as they transition to fatherhood is considered important (Darwin et al., 2017) and has been examined.

In response to the importance of men receiving support as they transition to fatherhood, Carlson et al. (2014) conducted a qualitative study, to examine expecting fathers' experiences and desire for support during the PPN time-frames. The purpose of the study was to learn if and how PPN parenting programs support the needs (or not) of first-time fathers. Eight focus groups were facilitated that utilised a sample of first-time fathers (*n*=47), mothers (*n*=9) and community practitioners who worked with new and expecting parents (*n*=7). Thematic analysis results revealed that men did not feel sufficiently supported by professional services. Specifically, men identified receiving inadequate instruction on how to best support their partners through pregnancy and birth, and on how to support their partners to sustain breastfeeding. Additionally, the men shared that they did not feel welcome by birth professionals and often reported being ignored during sessions and in hospital at the time of birth (Carlson et al., 2014). This was consistent with the literature where men have expressed fear of labour and birth processes due to not knowing how to assist their partner when they are in pain or that they will panic (Dellman, 2004; Redshaw & Henderson, 2013). Carlson et al. (2014) identified recommendations for future services that target expecting fathers and were also in support of SLT theory. Examples included: birth professionals creating an environment that harnesses a sense of connection and belonging through interaction, offering father specific resources (such as useful books), and support options that include other fathers (Carlson et al., 2014). However, several limitations were identified within Carlson et al.'s (2014) study.

The limitations included firstly, a lack of generalisability of findings. The participants were recruited from a population of men who attended a PPN parenting program that had targeted father inclusion. As a result, the findings could not be generalised to fathers at large. To avoid this occurring in the current research, parents who agreed to participate in studies 1, 2, and 3 were recruited based on having attended PPN parenting program in general—there

was no *a priori* criteria of the program attended having been specifically designed to meet the needs of expecting fathers. A second limitation was that retrospective responses were gathered from participants. The authors acknowledged that it may have been more appropriate to collect data from fathers who were making the transition to fatherhood at the time of data collection. Doing so could have resulted in more present-time understanding of support types that meet expecting fathers' needs. This limitation was taken into account when designing and completing studies 1 and 2 of the current research, both of which included a sample of fathers who had attended PPN parenting programs. In these studies participating fathers were directly asked to identify strengths, gaps, and limitations of PPN parenting programs they had attended when expecting children.

In sum, many theories relating to identity and role and have been developed as paradigms to increase understanding of the transition to parenthood from fathers' perspectives. SLT offers a positive perspective when fathers were included in PPN parenting education through a supported learning environment. This was most notable where skills, knowledge, resources, and opportunities for practice were provided to fathers. Thus, understanding the importance of father involvement throughout pregnancy and beyond was of interest in the literature reviewed above, and across all four of the current studies when considering recommendations for developing future PPN parenting programs.

**The Importance of Fathers**

As stated in Chapter 2, PPN health policies and interventions have historically targeted mothers more than fathers. One hypothesis for this is that most research-to-date has focussed on the influence that a mother's choices (e.g., diet, responses to daily life events, exposure to toxic environments) may have on the developing prenate's growth and wellbeing (St-Arneault, de Montigny, & Villeneuve, 2014). Research before the turn of the century did not find conclusive evidence that fathers being involved in PPN parenting programs led to

significant father-child bonding and father-child interaction and connection (Palkovitz, 1985). With time, research has embraced greater rigour in methodological, conceptual, and theoretical frameworks. This has led to two key outcomes that have shown significant associations between fathers' engagement in PPN parenting programs during the time of pregnancy and post-birth paternal involvement with their children. Firstly, there has been greater post birth bonding between fathers and their children (e.g., Young, 2013). Secondly, fathers have shown commitment to their roles as both a partner and a parent (Cabrera, Fagan, & Farrie, 2008; Cabrera, Fitzgerald, Bradley, & Roggman, 2007a).

More recent research examining the impact of fathers' involvement on prenates' and children's developmental outcomes have demonstrated consistency in findings. Specifically, research findings have posited that fathers influence their child's psychosocial (McElwain & Volling, 2004), neurodevelopmental (Jackson, 2017), cognitive (Cabrera et al., 2007b), physical (Alio, Mbah et al., 2011), and affective health (Brown et al., 2012).

The Father Involvement literature has also shown that when lack of support of a partner's pregnancy or lack of active engagement during pregnancy exists, levels of maternal stress hormones which babies are exposed to in-utero, increases (Somers-Smith, 1999). Further, mothers reported higher rates of common postnatal mental disorders such as anxiety and depression (Abiodun, Adetoro, & Ogunbode, 1993; Fisher et al., 2012; Gausia, Fisher, Ali, & Oosthuizen, 2009; Hendrick, 1998; Nhiwatiwa, Patel, & Acuda, 1998; Rahman, Iqbal, & Harrington, 2003; Wan, Moyer, Harlow, Fan, & Yang, 2009). These findings have been consistent across continents, with the exception of the sub-continent, India. This may be due to cultural differences in expectations of the role of a father during pregnancy and with childrearing, where culturally the role is considered to be the woman's (Chandran, Tharyan, Muliyil, & Abraham, 2002). Additionally, maternal anxiety and depression have been associated with negative impacts on attachment security with the child (Habib & Lancaster,

2006; Heinowitz, 1995). It has long been supported that this is where a father can help, as when the couple relationship is supportive and the dynamics within it are harmonious, the mother can achieve inner balance (Ballou, 1978; Klaus & Kennell, 1982).

Young (2013) found that in the absence of perceived support from the partner, the bonding process between mother, father, and baby can be compromised. Heinowitz (1995) suggested that boys who grow up without their fathers being present and engaged in parenting are at risk of exhibiting over compensatory masculine behaviours including rape, vandalism and theft, violence, brutality, as well as an increased risk for depression and suicide. Over a decade on, the findings in research are just as stark. Statistics from the USA on the importance of fathers in families revealed that children whose fathers are absent or disconnected (experienced as a lack of bonding), are five times more likely to commit suicide, 20 times more likely to have behavioural disorders, 10 times more likely to abuse substances, and 14 times more likely to commit rape (Fathers To Be, 2015).

Heinowitz (1995) originally suggested that a combination of three challenges has kept men feeling isolated through this significant life change and has perpetuated lack of involvement. They included: (a) a lack of rituals for men to engage in during the transition to fatherhood; (b) outdated societal norms that have depicted men's identity as being linked to occupational status and being the provider for the family; and (c) an expectation that men are supposed to fulfil the role of being fathers without support, skills, and tools being routinely provided by services. Further, Axness and Strauss (2007) advocated that fathers have an innate desire to bond with their baby pre-birth, yet due to cultural bias towards mother-baby bonding, father involvement has not been widely encouraged and supported. This has been evidenced by government policy favouring expecting mothers. Examples include paternity leave being scant in comparison to maternity leave (Axness & Strauss, 2007), as well as routine PPN care being more targeted to mothers' attendance than fathers' (e.g., Darwin et

al., 2017; Polomeno, 2009). Such inequity may leave fathers vulnerable to not knowing how to effectively bond with their baby or how to adequately integrate the role of fatherhood. Both can lead to feelings of low confidence and being unsupported and defeated, which can negatively impact ability for bonding and a positive transition to fatherhood (Axness & Strauss, 2007). The World Health Organisation (WHO) (2007) recognised that if men are included in PPN parenting programs during the time of pregnancy, they may experience a healthy transition to parenthood, be able to support their partner emotionally and psychologically, as well as bond with their baby post-birth.

**Barriers to fathers being included in PPN parenting programs.** Many reasons have been offered for the lack of encouragement for inclusion of fathers in PPN parenting programs. One key reason is a lack of confidence and skills of PPN practitioners to effectively engage fathers (Shribman & Billingham, 2008). This has led to some prenatal and birth education professionals not perceiving their role as being to work with fathers (Zanoni, Warburton, Busey, & McMaugh, 2013). Additionally, perceptions about the role of a father as being less important than that of the mother have also been reported (Sheriff & Hall, 2011). As a result, fathers have reported feeling invisible, unimportant, overlooked (Bäckström et al., 2017; Salzmann-Erikson & Eriksson, 2013), and helpless (Bäckström & Hertfelt Wahn, 2011) as they transition into fatherhood. When fathers attend PPN parenting programs or classes with their partners, every effort needs to be made by the facilitators to discover and incorporate fathers' needs and perspectives throughout each session (Hohmann-Marriott, 2009; Shorey et al., 2017).

***Attempts to overcome the barriers to fathers being included.*** In an attempt to assist birth educators and professionals to be confident and able to connect and engage with expecting fathers during pregnancy and beyond, The Fatherhood Institute in the UK developed a one-day workshop for PPN practitioners (Humphries & Nolan, 2015). The

workshop was designed to provide education to mitigate stereotypes and assumptions that may act as barriers for men as they transition to fatherhood. Additionally, the workshop included research on the influence a father has on both mother and child during and post pregnancy, and provided strategies for father engagement (Humphries & Nolan, 2015). The study utilised a before-and-after evaluation design and involved pre- and postnatal professionals (n=191), across 12 sites. Data collection spanned the timeframe of November 2011 to January 2014.

Statistically significant differences ($p<.01$) were found for improvements in knowledge, more positive attitudes towards expecting fathers, and commitment to actively engage fathers in services offered during the pre- and postnatal times (Humphries & Nolan, 2015). Telephone interviews were conducted three months post workshop, where the verbatim feedback from professionals explaining their perception of fathers was of interest. Common feedback revealed a belief that fathers were often disinterested during sessions offered (e.g., "leave the room", "find something else to do"), and that fathers often did not attend the sessions (e.g., "times conflict with work schedules") (Humphries & Nolan, 2015). These comments highlighted a need for session content to be improved so that it is engaging and appropriate for fathers, and that flexibility in attendance times be offered for sessions.

It was noted by the National Nursing Research Unit (2013) in London, UK, that research and interventions that engage and involve men from the earliest stages in pregnancy are lacking and are yet to respond to the need. Fletcher et al. (2006) stated that it is a public health responsibility for fathers' mental and emotional needs to be met during the provision of PPN parenting programs, if they are to be able to provide care and support to their partner and children. In the absence of this occurring, the statistics for fathers' mental wellness are bleak. Specifically, it was found that when a mother was in distress, so was the father (Goodman, 2004). In 50% of cases where the participating mother was diagnosed with

depression pre- or postnatally, so was the father (Harvey & McGrath, 1988). At six weeks post birth, diagnosable anxiety and depressive disorders in new fathers was between five (Matthey, Barnett, Howie, & Kavanagh, 2003) and 10 percent (Giallo et al., 2013). The consequences of this have been shown to affect the prenate and baby post birth, whereby a father's postnatal depression may exacerbate the mother's own depression (Ballard & Davies, 1996; Tohotoa et al., 2012). This can negatively impact a child's social, psychological, relational, and cognitive development and wellbeing (Brown et al., 2012; Cabrera et al., 2007b; Edhborg, Lundh, Seimyr, & Widstrom, 2003; Jackson, 2017). Paternal postnatal depression has also been linked to suboptimal parenting practices such as paternal unresponsiveness to his baby (Parfitt, Pike, & Ayres, 2013). Postnatal anxiety in the father may also influence the level of anxiety in the child (Bögels, Bamelis, & van der Bruggen, 2008).

**Conclusion**

The role of the father in the 21st century is multifaceted and research indicates that without support and inclusion in offerings provided during the PPN time-frames, fathers can be left feeling uncertain and ill-prepared. A range of theories have been drawn upon in the current literature. Self-concept of the father role, level of emotionally driven identity in relation to the prenate (Habib & Lancaster, 2006), expectations about self in the role of being a father (Biddle, 1986), and level of involvement by fathers may influence outcomes. However, for fathers who are actively engaged, present, and confident in their role as fathers, positive outcomes such as enhanced father-baby bonding seems possible, although results in the literature are inconsistent.

Existing research has revealed an association between educating expectant fathers through parenting programs and decreases in mothers' stress and anxiety, and improvements in the quality of communication and the couple relationship (Simbar et al., 2010; Turan &

Say, 2003; WHO, 2007). Improving engagement with expectant fathers in PPN parenting programs, therefore, relies on the ability of services and programs to promote a father-friendly image and market themselves as relevant to the interests and needs of fathers (Plantin et al., 2011). It is also important that fathers be recognised and supported for the vital role they play in the development of their children from the early moments of pregnancy throughout the lifespan (St-Arneault et al., 2014).

A range of perceived barriers to fathers involvement in PPN parenting programs have been highlighted indicating that mothers and birth professionals alike may be able to do more to welcome, engage, and address the needs of men through this life transition. In closing, fathers are important and if they are willing and wanting to be involved, then the opportunity to be supported and educated from the earliest moments of pregnancy onwards needs to be available and accessible to them.

**The Present Study**

Limitations in the studies discussed provided an opportunity for the current research project to address them. The opportunities included: (a) identifying the specific needs of fathers and including strategies, resources, and support options to address the needs in PPN parenting program offerings; (b) creating training for birth professionals on sound strategies for how to include, engage, and meet the needs of men who are willing and wanting to be involved in PPN parenting programs; (c) increasing empirical studies that include fathers using valid and reliable methodological procedures (e.g., large sample sizes, control groups, validated measures); (d) gaining a deeper appreciation of how role theories are relevant in understanding the male transition to parenthood, and where appropriate, educating birth professionals and parents about this; and (e) understanding the most appropriate timing of a pregnancy to engage expecting fathers.

The inclusion of fathers in PPN parenting programs is important. Therefore, the current research studies 1, 2, and 3 aimed to explore and identify effective strategies for recruiting fathers to PPN parenting programs. Studies 1 and 2 were exploratory in nature with parents' responses to three main topics being of interest. They were: identifying strengths, gaps, and limitations of PPN parenting programs attended; learning what coping and support strategies may be required for the successful transition to parenthood; and understanding the perceptions that exist about whether a mother's and father's thoughts, emotions, beliefs, moods, and quality of the partner relationship during pregnancy influences their prenate.

Responses from the first two studies informed questions and related items for inclusion in Study 3, a Delphi methodology study that included 12 mothers and 11 fathers. The data gathered across the studies was used to inform recommendations that address the future of PPN parenting programs and related research. A detailed discussion is provided in Chapter 9. The research aims and research questions for each of the studies are outlined in the following chapter.

# Chapter 4: Summary, Aims, Research Questions

## Time for a New PPN Parenting Education Paradigm

There have been numerous emerging fields of science that may potentially influence the future of PPN parenting programs. Examples include epigenetics (introduced in Chapter 1), which explores how inner and outer environmental sources trigger gene expression and inhibition (Champagne & Rissma, 2011; Church, 2009; Gervai, 2009; Lipton, 1998, 2008; Meloni, 2014; Meloni & Testa, 2014); and mindfulness (Gambrel & Piercy, 2015; Michaud, 2012), which is discussed in Study 2 (Chapter 6). Hughes and Baylin (2012) suggested that parental programs that merge both epigenetics and mindfulness may have an increased likelihood of providing solutions to family situations that have histories embedded within behavioural challenges. Others are in favour of programs that incorporate skills where parents can intentionally and mindfully focus on understanding themselves, their children, and how what they do influences the family dynamics (Maldonado-Duran et al., 2000; Roy Malis, Meyer, & Gross, 2017). Therefore, the levels of awareness and understanding of the concepts of epigenetics and mindfulness in the PPN parenting program context were of interest, and were explored across the four studies of the dissertation.

## Rationale for the Use of Research Questions Only

Due to the use of qualitative methodologies across the four studies of the current project, only research questions were postulated. Hypotheses were not generated as the intention was to gather qualitative data to inform recommendations for best-practice of future PPN parenting programs. Consequently, predicted perceptions were not of importance. This rationale is supported by literature that states hypotheses are for use in quantitative studies only (Farrugia, Petrisor, Farrokhyar, & Bhandari, 2010; Shuttleworth & Wilson, 2008).

One exception arose in Study 1, where the results of the thematic analysis process enabled one out of the five research questions to be explored using quantitative data analysis. A related hypothesis was formulated and is outlined in the next section.

**Study 1 Aims and Research Questions (Chapter 5)**

As discussed in the literature review that explored the history of PPN parenting education (Chapter 2), research and interest in families and pregnancy has steadily gained momentum. However, as limitations in empirical data remain, Study 1 aimed to extend current scientific evidence regarding coping strategies mothers and fathers used to mitigate stressors experienced throughout a pregnancy. Further, the role that social support may play in influencing emotional and mental wellbeing of mothers, fathers, and birth outcomes of babies was examined. This exploratory-based study utilised a self-report questionnaire to ascertain appropriate needs-based content for future PPN parenting programs.

Five research questions focussed Study 1:

1. What types of PPN parenting programs do parents attend?
2. What are the strengths, gaps, and limitations in current PPN parenting programs?
3. Are there differences in stressors experienced during pregnancy and beyond by mothers and fathers?
4. Are there differences in coping strategies used and support accessed through pregnancy and beyond by mothers and fathers?
5. What are the differences in the types of support accessed by expecting parents, depending on partner response to the pregnancy?

When considering research question 5, as stated above, thematic analysis generated an opportunity for the data to be analysed quantitatively. As a result, prior to the chi-squared tests being undertaken, it was hypothesised that expecting parents who perceived a negative response from their partner to the pregnancy, would access support types outside of the

partner relationship more than for those who perceived a positive partner response to the pregnancy.

**Study 2 Aims and Research Questions (Chapter 6)**

The second study aimed to explore the beliefs and perceptions of mothers and fathers regarding if maternal and paternal thoughts, emotions, ways of communicating, and behaving throughout a pregnancy influence the growing prenate and who babies become post birth. Mindfulness was defined as consciously choosing to be mindful of thoughts, ways of communicating, and ways of behaving throughout a pregnancy. Results were used to generate some of the questions and factors for consensus rating in the online questionnaire of the Delphi methodology studies (Studies 3 and 4), that were designed to identify recommendations of content and logistical factors for inclusion in future PPN parenting programs. Data obtained assisted in the examination of two research questions:

1. Do expecting mothers' and fathers' thoughts, emotions, beliefs, moods, and quality of the partner relationship influence their prenate?
2. How regularly do mothers and fathers consciously choose to communicate with their baby throughout pregnancy?

**Studies 3 and 4 Aims and Research Questions (Chapters 7 and 8)**

The third and fourth studies investigated factors that may contribute to effective PPN parenting programs for the 21st century, from expert parent (Study 3) and birth professional (Study 4) perspectives. Relevant outcomes from both Studies 1 and 2 were used to inform research questions and items for consensus rating.

Using Delphi methodology for attaining consensus, studies 3 and 4 included five literature-derived research questions:

1. What factors may impact both the development of prenates during gestation and influence who babies become post birth, that expecting parents would benefit from learning about?
2. What content is most effective for inclusion in future PPN parenting programs?
3. What content is ineffective for inclusion in future PPN parenting programs?
4. What factors may contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?
5. What logistical and program delivery-related factors are most effective when considering future PPN parenting programs? More specifically:
    a. Which groups of parents may benefit from having access?
    b. Who should attend the sessions?
    c. What stage of a pregnancy is most effective for PPN parenting programs to both start and end?
    d. How can information in PPN parenting program most effectively be presented/delivered?
    e. What is the most effective location/platform for delivery?
    f. Who ought to deliver PPN parenting programs?
    g. What is the most effective length of each session and time between each session?
    h. What is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?

One additional research question that was exclusive to each expert panellist group was included. The parent panellists in Study 3 were asked "What are the most effective ways PPN parenting programs and/or facilitators of programs could maintain your level of engagement and involvement as a parent, once a program has started?" The birth professional panellists were asked "To ensure new PPN parenting programs are relevant and up-to-date, what

current practices and/or theories that relate to conception, pregnancy, birth, and post birth do you believe would be of value to educate pregnant couples on?"

Each of the four studies is presented in Chapters 5, 6, 7, and 8, respectively and includes the methodology, results, and related discussions. Chapter 9 includes findings that extend the current literature and the understanding of what constitutes effective design, development, and delivery of PPN parenting programs for the 21st century. Suggestions for future research are detailed.

# Chapter 5: Support during Pregnancy as an Influencing Factor on the Transition to Parenthood

## Study 1 Rationale

As discussed in earlier chapters, the transition to parenthood has often been perceived as a difficult time with potential to elicit changes in self-identity (Heinowitz, 1995; Plantin et al., 2011), role identity (Habib & Lancaster, 2006; Zvara et al., 2013), and the couple relationship (Halford et al., 2010; Van de Carr & Lehrer, 1988). Research to date is mixed as to most appropriate content (Edvardsson et al., 2011; NWCPHP, 2012), timing (NWCPHP, 2012; Robling et al., 2016), and delivery methods of PPN parenting programs (Deslauriers et al., 2012; Hauck et al., 2016). The 21st century has seen rise in innovative sciences (Anacker et al., 2014; Atzil et al., 2013; Gambrel & Piercy, 2015; Serpeloni et al., 2017), technology (Gazmararian et al., 2014; Godin et al., 2015), and an expanded understanding of a prenate's capability for memory, learning, and social interaction (Brown et al., 2012; Fedor-Freybergh, 2002; Siegel, 2010a). Therefore, it seemed timely to explore opinions, beliefs, and perceptions of a sample of mothers and fathers who parent in the modern time.

Study 1 was an exploratory study that investigated perceived quality and appropriateness of existing PPN parenting program offerings, aspects in life that may create stress throughout a pregnancy, and types of coping and support strategies that expecting parents have accessed throughout a pregnancy. It included open-ended questions exploring information regarding quality of couple relationships and communication. The aim was to examine possible content areas for future PPN parenting programs that may mitigate reduction in couple satisfaction during this important life transition. Given that expectant fathers can influence the emotional and mental wellbeing of the mother (e.g., Fisher et al., 2012), and birth outcomes of the baby (e.g., Alio, Mbah et al., 2011; Jackson, 2017), ensuring

men are included and supported throughout the PPN time-frames is paramount, and fathers were therefore included in Study 1.

The aim of this chapter was to explore the literature on: (a) coping mechanisms and social support options during pregnancy, (b) the importance of partner as a social support for mothers and the unborn baby, (c) the importance of fathers in the transition to parenthood, and (d) existing PPN parenting programs. The theoretical frameworks of Attachment Theory (Ainsworth et al., 1978; Bowlby, 1969), Life Course Theory (Bengtson & Allen, 1993), and Life Transition Theory (Folkman, 1997; Lazarus & Folkman, 1984) are considered throughout the chapter where contextually appropriate, as both mothers and fathers may benefit from having secure and close relationships to successfully navigate this important life transition (Dabrassi et al., 2010). Existing research was then examined in comparison to the findings from the thematic analysis undertaken in Study 1, which are discussed later in this chapter.

**Coping Strategies and Support Options during Pregnancy**

A plethora of research has explored adaptive and maladaptive ways of coping with stress during a pregnancy (e.g., Feldman, Dunkel Schetter, Sandman, & Wadhwa, 2000; George et al., 2013; Huizink, Robles de Medina, Mulder, Visser, & Buitelaar, 2003). Prenatal stressors have typically been linked to negative outcomes for a mother and her baby. Examples include maternal anxiety (Huizink et al., 2003; Tremblay & Soliday, 2012), maternal depression (Pawlby et al., 2011), and a negative relationship with father of the child (Halford et al., 2010). Additionally, it has been shown that the function of the placenta changes when the mother is depressed or anxious (O'Donnell et al., 2012). This is due to larger quantities of cortisol (known as the stress hormone) passing through the placental barrier (O'Donnell et al., 2012). This has been shown to lead to reduced fetal growth, low

birth weight for gestational age, and sub-optimal development of the fetal brain (Feinberg et al., 2015; Glover & Sutton, 2012).

Maladaptive strategies range from avoidance of the situation or people who may be able to offer support, to aggression (Huizink et al., 2002b). Adaptive strategies include emotion-focussed (regulating emotional response to the stressful situation) and problem-focussed (where planning, information gathering, and active solution finding dominates) (Huizink et al., 2002b). Research has suggested that a problem-focussed approach has been a widely used adaptive coping strategy when individuals are faced with stress in general (Carver, Scheier, & Weintraub, 1989; Lazarus & Folkman, 1984). However, it seemed to be more so for men than women (Banyard & Graham-Bermann, 1993; Hobfoll, Dunahoo, Ben-Porath, & Monnier, 1994). For example, McQueeney, Stanton, and Sigmon's (1997) study found that in a sample of 27 women from Kansas, USA, being emotion-focussed led to increased feelings of wellbeing and decreased perceived distress and depression.

**Adaptive coping strategies.** When the adaptive coping strategy of social support was considered, Feldman et al. (2000) found a lack of social support was correlated with low birth weight babies. Low birth weight is of course, a primary cause of infant mortality (Salihu et al., 2014). Further, the relationship between adaptive and non-adaptive coping strategies paired with anxiety was explored in a sample of 158 pregnant French women. It was found that anxious women used significantly ($p<.05$) more non-adaptive coping strategies (e.g., distraction, substance abuse, self-blame, venting) than adaptive strategies such as planning, seeking emotional support, humour, and acceptance (George et al., 2013). Two main limitations were identified. Firstly, because only self-reported data was collected, the validity of the data may have been restricted, as it is possible that over-and under-reporting of use coping strategies being measured occurred, particularly when anxious during a pregnancy. Secondly, selection bias may have been present as participating women were recruited from

birth preparation classes. This may have had an adverse effect on the ability to generalise results to a wider population. Selection bias was mitigated in Study 1 of the current research project by recruiting a random global sample through social media.

Irrespective of these limitations, the findings do lend themselves to the opportunity of providing PPN parenting programs that offer adaptive coping skills and strategies for couples expecting a baby. Doing so may enable anxiety to be navigated, as it is very common through pregnancy and the transition to parenthood (e.g., O'Connor, Heron, Golding, Beveridge, & Glover, 2002; Tremblay & Soliday, 2012). Negative outcomes in response to maternal anxiety have included low birth weight and impaired bonding and attachment post birth for the prenate (Della Vedova & Burro, 2017; Feinberg et al., 2015; Field et al., 2010; Huizink et al., 2003; Jomeen & Martin, 2005; O'Connor et al., 2002).

This suggestion aligns with the Stress and Coping Theory (Lazarus & Folkman, 1984). Considered a Life Transition theory, it advocated that when the transition to parenthood was deemed stressful by one or both expecting parents and they did not engage in adaptive coping strategies, the distress experienced posed a risk to both themselves and the developing prenate (Lazarus & Folkman, 1984). In the revised version of Stress and Coping Theory, Folkman (1997) stated that pregnant women who engaged in the adaptive coping skills that lead to positive affect, tended to experience reduced stress and mitigated harm to their prenates. Examples of adaptive coping strategies that may lead to reduced maternal stress are mindfulness practices (Giardinelli et al., 2012; Goodman et al., 2014), which was explored in Study 2, and accessing social support, which is discussed next.

***Support as an adaptive coping strategy.*** Women stressed during pregnancy have reported that accessing social support when required was important (Cameron, Wells, & Hobfoll, 1996). When pregnancy is considered, social support has long been linked to psychological wellbeing, perceived ability to influence solutions to stressful situations, and

increased self-worth (e.g., Cobb, 1976; Kalil, Gruber, Conley, & Syntaic, 1993). Social support has been defined as assistance given during times of stress by a partner, friends, family members and/or professionals (Kim, Connolly, & Tamim, 2014). It can take multiple forms, including emotional, physical, instrumental (e.g., financial), and informational (Logsdon & Koniak-Griffin, 2005). In pregnancy, social support has been shown to be a critical factor in overall physical, mental, and emotional wellbeing of the expecting mother (Albuja, Lara, Navarrete, & Nieto, 2017; Dunkel Schetter, Sagrestano, Feldman, & Killingsworth, 1996).

Feldman et al.'s (2000) prospective study examined maternal social support during the third trimester of pregnancy in relation to fetal growth. Using a sample of 247 women based in California, USA, women with multiple types of social support (including the father of the baby) had higher birth weight babies. Research has also indicated that women who perceived being able to access a range of social support (e.g., family and friend support, obstetric support) during pregnancy (Feldman et al., 2000; Rodrigo et al., 2016), tended to seek health and prenatal information and care early in pregnancy (Sable, Stockbauer, Schramm, & Land, 1990; Sidebottom, Hellerstedt, Harrison, & Jones-Webb, 2017; Zambrana, Dunkel Schetter, & Scrimshaw, 1991; Rodrigo et al., 2016). The inclusion of a midwife and/or doula as a support option has also been shown to have positive benefits during the labour and birthing processes (Gruber et al., 2013).

Gruber et al.'s (2013) study involved 289 pregnant women (mothers who accessed a doula, *n*=97; non-doula mothers, *n*=128) living in the USA. A *doula* can be defined as "a woman experienced in childbirth who provides advice, information, emotional support, and physical comfort to a mother before, during, and just after childbirth" (Merriam-Webster Incorporated, 2018). It was found that whilst caesarean birth rates versus vaginal were higher

for mothers who did not use a doula (*n*=31), than for those who accessed a doula (*n*=19), the difference was not statistically significant (*z*-tests, $p<.05$).

Caution is warranted when interpreting results from Gruber et al.'s (2013) study that having a doula is the sole reason for lower incidences of caesarean births due to two limitations. Firstly, in all instances (*n*=289) the respondent mothers had access to prenatal and birthing informational via childbirth education classes; this information may have been a type of support for mothers. Secondly, data collection did not explore support people other than a doula that participants may have had access to during their pregnancies. In an effort to address this second limitation, participating parents in Study 1 of the current dissertation were asked to identify the support network available to them during pregnancy and the fourth trimester. Of eight options presented, birthing team was one (e.g., midwife, doula, Obstetrician/Gynaecologist [OB/GYN]), and results are discussed later in this chapter. Future PPN parenting programs could advocate the benefits of social support to expecting couples and this was highlighted in the recommendations suggested by parent and birth professionals in Studies 3 and 4 (see chapters 7 and 8).

**Lack of social support as a maladaptive coping strategy.** Negative outcomes can result for pregnant women, expecting fathers and their babies when access to social support and adaptive coping strategies are not available. Examples include depression during pregnancy (Bennett, Einarson, Taddio, Koren, & Einarson, 2004; Da Costa et al., 2010), postnatal depression (Albuja et al., 2017; Huizink, Robles de Medina, Mulder, Visser, & Buitelaar, 2002a; Leung et al., 2017; Milgrom et al., 2008), and anxiety disorders (Giardinelli et al., 2012). Brugha et al. (1998) conducted a prospective epidemiology study in Leicester, UK. The role that social support played in predicting depressive symptomology was examined, and 507 women who were pregnant for the first time, participated. Low partner support was a key risk factor during the prenatal period for postnatal depression ($p<.01$).

Whilst the size of the support network did not influence the development of postnatal depressive symptoms, the availability of support when needed did (Brugha et al., 1998). Brugha et al. (1998) recommended that PPN parenting programs should target enhancing support networks. This recommendation has been well supported in recent decades (Bäckström et al., 2017; Feldman et al., 2000; Gabbe et al., 2017) concurred. More specifically, one recent phenomenological study utilised semi-structured interviews, and involved UK-based mothers of at least one-child (N=47). It was reported that support by peers who also had experiences of anxiety during the time of pregnancy and post-birth, was perceived as contributing to reduced anxiety and stress (McLeish & Redshaw, 2017). Types of support that expectant parents accessed during pregnancy were therefore investigated in Study 1.

Harrison and Sidebottom's (2008) study focussed on the development and implementation of the Prenatal Risk Overview, a tool that assesses psychosocial risk factors associated with poor birth outcomes for mothers and their babies. The study specifically explored prevalence and inter-correlations of psychosocial risks during the prenatal time. Data collection occurred in Minneapolis, Minnesota, USA, between 2005 and 2007. Of the 1,386 prenatal patients recruited from four community health centres, 75% reported having a lack of social support (Harrison & Sidebottom, 2008). This translated to circumstances where expecting mothers reported having no-one to count on in times of need. For those mothers who did have a partner, unhappiness with the communication and support within the relationship was reported. Post birth results indicated higher rates of depression in the mother, which had negative impact on postpartum bonding and low birth weight babies (Harrison & Sidebottom, 2008). Limitations were identified and most notable was that the results may not be generalisable across populations; the reason being the respondents were recruited from one city and were from a low-income cohort. A second limitation was the use

of the self-report method for data collection, as this may have impacted the validity of the findings. Study 1 addressed both of these challenges and the specifics of *how* are discussed in the summary of limitations section next. At the time of the study, Harrison and Sidebottom (2008) identified that future studies would need to include structured diagnostic interviews that assess prenatal risk components—social support being one. Lancaster et al.'s (2010) review of 20 articles relating to social support and depressive symptoms during pregnancy concluded that one of the most important risk factors of depression during pregnancy was lack of social support for mothers.

**Limitations and Summary**

Three limitations were consistently highlighted across studies presented thus far. The first was the use of self-report methodology as the main form of data collection. Validity of outcomes reported in the studies may be reduced based on the potential for over or under-reporting on factors being measured (e.g., the use of coping strategies by mothers and fathers when anxious during a pregnancy). Despite this, a self-report online questionnaire was utilised in Studies 1and 2 for three reasons: (a) the exploratory nature of the studies; (b) the intention to recruit participants from a global population, making diagnostic interviewing impractical; and (c) the length of the questionnaire would have made interviewing expensive and unrealistic. Specifically, 40 questions were included to gather existing parents' perspectives across five topics. Responses guided the content within the Delphi methodology questionnaires (Studies 3 and 4) and informed best-practice recommendations for future PPN parenting programs.

The second limitation across existing research included the risk of selection bias (e.g., selecting women from birth preparation classes, all respondents being from a low-income cohort, and the utilisation of geographically narrow samples), which limited the ability to generalise results to wider populations. This was addressed in Study 1 of the current research

as participants were recruited globally using social media platforms. The third limitation identified in two of the existing studies was that the support network available to women during pregnancy other than a doula was not measured. Therefore, *unknown support people* may have been a confounding variable to the perceived positive impact of a doula's presence in the lead up to and during labour and birth. Learning more about coping strategies and social support available during pregnancy was one aim of Study 1 involving a sample group of parents ($n$=61). Specific questions relating to existing social support networks were directly asked in the online questionnaire utilised. Of eight social support options, partner relationship as a source of social support for pregnant mothers was of particular interest.

**The Couple Relationship as a Source of Social Support**

The transition to parenthood has often been perceived as stressful, resulting in a decline in relationship satisfaction (Cowan & Cowan, 2000; Gottman, Driver, & Tabares, 2002; Rosand et al., 2011). This has been consistent across countries, including USA (Gottman et al., 2002), Europe (Salmela-Aro, Aunola, Saisto, Halmesmaki, & Nurmi, 2006), and Asia (Lu, 2006). Relationship discord has been associated with low birth weight babies (Joyce, 1990), developmental setbacks (Orr, James, & Blackmore Prince, 1992), and lack of physical and emotional nurturing by mothers to the child (Roussounis et al., 1993).

Studies have revealed both similarities and differences between mothers' and fathers' perceptions of changes in the couple relationship, when measured post birth. Doss, Rhoades, Stanley, and Markham's (2009) longitudinal study, that investigated relationship functioning of couples (mothers, $n$=218; fathers, $n$=218) after the birth of their first child, found that mothers ($d$=-0.71, p<.01) and fathers ($d$=-0.45, p<.05) noted a decline in their level of marital satisfaction quickly after birth. Conversely, in an earlier longitudinal study, fathers reported a decline that occurred over a period of time, with a gradual onset from six months post birth onwards (Grote & Clark, 2001). Doss et al. (2009) also found that both mothers ($d$=0.57,

*p*<.05) and fathers (*d*=0.61, *p*<.01) reported statistically significant increases in negative communication as a measure of relationship functioning post birth. However, when changes in relationship after birth were considered, mothers only stated a sudden increase in poor conflict management (*d*=0.54, *p*<.001), problem intensity within the relationship (*d*=0.77, *p*<.001), and a significant decrease in their confidence in the partner relationship (*d*=-0.61, *p*<.05) (Doss et al., 2009).

The transition to parenthood for couples is commonly linked to a decline in couple relationship satisfaction that is evidenced in a variety of ways. Examples include: reduced intimacy, increased conflict, reduced communication, and decreased perception of supportiveness (Bradbury & Karney, 2004; Davis et al., 2016; Halford et al., 2010; Nomaguchi & Milkie, 2003). Petch and Halford (2008) further postulated that the quality of partner relationship (e.g., non-supportive) directly impacts the quality of care given to a baby post birth.

**The impacts of a non-supportive couple relationship during pregnancy.** Pregnant women who reported having a non-supportive partner relationship, denoted by not being close and having poor communication, have been found to be at greater risk of birthing low birth weight babies (Mutale, Creed, Maresh, & Hunt, 1991). Birth weight has long been correlated with levels of prenatal stress (e.g., Cassel, 1976; Collins, Dunkel Schetter, Lobel, & Scrimshaw, 1993; Harrison & Sidebottom, 2008; Hoffman & Hatch, 1996). More recently, maternal prenatal stress is considered to be one of the most important markers of health for a baby post birth (Hussaini et al., 2011).

Kalil et al. (1993) conducted a prospective study that focussed on the relationship between social support and stress during pregnancy. Participants included 433 pregnant women from the USA. Results revealed that women who reported having an emotionally

supportive partner, had significantly lower state anxiety across all three trimesters of pregnancy (measured by the Spielberger State-Trait Anxiety Inventory, $p<.01$).

More recently, Mehl-Madrona (2002) found an association between lack of partner support and increased obstetrical risks, whereas marital satisfaction was linked to uncomplicated birth outcomes. Liamputton and Naksook (2003) reported that women considered their partners' support to be important during the transition to motherhood. Early researchers postulated that when a father is educated on maternal care for mother and baby and they are actively involved in a pregnancy from the earliest stages, depression, anxiety (Winnicott, 1960), and stress (Diemer, 1997) levels reduce in the mother.

Decades on, Kaye et al. (2014) championed that PPN parenting programs need to focus on increasing male partner involvement; one reason being reduced obstetric complications (e.g., eclampsia and obstructed labour). Evaluating the efficacy of PPN parenting programs as a support option for pregnant women to mitigate anxiety, depression, and lack of social support, warrants further investigation (Milgrom et al., 2008). Studies 1, 3, and 4 of the current research project examined parent and birth professional perspectives on both content and logistical factors relating to design, development, and delivery of effective and valuable PPN parenting programs.

An Australian-wide study encompassed 40,333 pregnant women who rated their levels of postnatal risk factors for depression via the Edinburgh Postnatal Depression Scale (EPDS) (Milgrom et al., 2008). Low partner support during the prenatal period was found to be a key predictor for postnatal depression (Leigh & Milgrom, 2008; Milgrom et al., 2008). The authors acknowledged that whilst self-reporting may have reduced validity, due to the large scale of the study, conducting diagnostic interviewing was not practical.

Rosand et al.'s (2011) mother-child cohort study ($n$= 51,558 mothers) measuring 37 risk factors on levels of emotional distress, found that relationship dissatisfaction was the

strongest predictor of maternal emotional distress ($\beta$=0.25; $p$<.001). This finding was consistent with existing literature when women's mental health during pregnancy was considered (e.g., Morse, Buist, & Durkin, 2000). Causation could not be determined as there was no way of knowing directionality, whether relationship dissatisfaction caused emotional distress or vice versa (Rosand et al., 2011). As with Milgrom et al.'s (2008) study, the use of a self-report measure may have reduced validity of findings, even though it was a practical choice for such a large sample size. Rosand et al. (2011) recommended that future PPN parenting programs extend beyond traditional content that focusses on birth, to include topics on ways to strengthen the couple relationship. Expert parent and birth professional perceptions of specific topics to be included in future PPN parenting programs were examined in Studies 3 and 4 for this purpose.

**Summary**

Prenatal stressors have been linked to a range of negative outcomes for mothers, fathers, and prenates. There are maladaptive and adaptive ways of negotiating stress and research showed that men and women used strategies differently. Specifically, with men choosing predominantly problem-focussed strategies (e.g., planning a solution) and women opting for emotion-focussed (e.g., managing challenging emotions as they arise) strategies (Hobfoll et al., 1994).

Social support (e.g., partner, family, friends, professionals), as an adaptive coping strategy for women during the time of pregnancy, is associated with a wide range of associated positive benefits such as reduced anxiety and increased self-worth. Further, studies have shown that women who accessed social support also engaged in PPN parenting programs early in their pregnancy (e.g., Rodrigo et al., 2016). Conversely, having a lack of perceived social support available was correlated with challenges for pregnant women that

included maternal depression and anxiety, and postnatal depression (e.g., Da Costa et al., 2010; Giardinelli et al., 2012).

A partner being a cornerstone of social support has been well researched and is linked to lower levels of state anxiety for the mother. Conversely, the absence of a supportive partner relationship has been shown to negatively impact the mother (e.g., increased mood disorders, Lancaster et al., 2010), father (e.g., decreased bonding with baby and dissatisfaction in couple relationship, Tohotoa et al., 2012), and baby (e.g., low birth weight, Feldman et al., 2000). Early research concluded that when fathers were involved in PPN parenting programs, mothers' levels of depression, anxiety (Winnicott, 1960), and stress (Diemer, 1997) can reduce.

**Limitations**

Limitations in the existing research consistently related to three factors. The first was selection bias (e.g., in the contexts of income status and drawing samples from limited geographical reach), restricting the accuracy of generalising results to broad populations. The second limitation was the common use of self-reporting measures which can be associated with reduced validity in results interpretation Third, was that in some studies causation could not be inferred, resulting in lack of clarity as to the directionality of relationships between factors. For example, whether relationship dissatisfaction causes emotional distress or vice versa (Rosand et al., 2011).

To address the first limitation stated above, Study 1 of the current research used a sample of 61 parents recruited globally via social media. The aim was to generalise results across the wider population, and thus enhance the validity of the findings. In relation to the second limitation, data in Study 1 was collected via a self-report questionnaire, despite this method being identified as a challenge in existing studies. However, it was deemed appropriate due to the exploratory nature of the design of Study 1, though the validity of

results was interpreted with caution. This is discussed at the end of the chapter. The third limitation was not of concern in Study 1, as association between variables was of interest only; causation was not measured due to a low number of cases in some variables (this is discussed in detail in the Results section of this chapter).

In response to the limitations identified in the literature review on support during pregnancy as an influencing factor on the transition to parenthood, the current studies extended existing research by: (a) learning what factors create stress for mothers and fathers and incorporating strategies to manage this in PPN parenting programs (Study 1); (b) discovering fathers' needs when transitioning to parenthood and identifying relevant strategies to assist them to feel included, supported, and confident (Studies 1 and 3); and (c) proposing frameworks for PPN parenting programs that will focus on enhancing support networks, increasing father/partner involvement, and strengthening couple relationships (Studies 1 to 4).

**Study 1 Aims and Research Questions**

This study was exploratory in nature, where subjective experiences of parents were elicited to aid further understanding of: (a) perceived benefits, disadvantages, and limitations from existing PPN parenting programs, as well as recommendations to improve programs; (b) the challenges and stressors mothers and fathers experienced during pregnancy; and (c) the types of coping strategies and support commonly utilised during pregnancy.

In addition, one of the intentions of the current study was to ascertain if and how information shared by the respondents differed between mothers and fathers. This was in response to large quantities of research that has indicated expectant fathers have not been targeted and included to the same degree as expecting mothers in PPN parenting programs (Darwin et al., 2017; Hallgreen, Kihlgren, Forslin, & Norberg, 1999; Hollins Martin & Robb, 2013; Maldonado-Duran et al., 2000). A qualitative research approach was utilised to allow

for categories relating to the PPN experience of mothers and fathers to emerge for identification and further investigation.

Five research questions were posed.

1. What types of PPN programs do parents attend?
2. What are the strengths, gaps, and limitations in current PPN parenting programs?
3. Are there differences in stressors experienced during pregnancy and beyond by mothers and fathers?
4. Are there differences in coping strategies used, and support accessed, through pregnancy and beyond by mothers and fathers?
5. What are the differences in the types of support accessed by expecting parents, depending on partner response to the pregnancy?

As stated in Chapter 4, the results of the thematic analysis enabled research question 5 to be explored using quantitative data analysis. As a result, prior to analysis, a hypothesis was posited and was that expecting parents who perceived a negative response from their partner to their pregnancy, would access support types outside of the partner relationship, more than those who perceived a positive partner response to the pregnancy.

Study 1 aimed to extend current scientific evidence regarding coping strategies mothers and fathers used to mitigate stressors experienced throughout a pregnancy. Further, the role that social support may play in influencing emotional and mental wellbeing of the mother, father, and birth outcomes of the baby was examined. This exploratory-based study utilised a self-report questionnaire where the results were used to extend the limited empirical base of the stressors and psychosocial outcomes that occur during pregnancy, the transition to parenthood, and the fourth trimester. Additionally, the information was gathered to gain understanding of the respondents' perceptions of what content future PPN parenting programs would need to include to be deemed beneficial. This information was then

compared to the existing literature and to expert parent and birth professional opinions from Studies 3 and 4 (see Chapters 7 and 8 for findings). Recommendations for content focus, program structure, and timing for future PPN parenting programs was then consolidated (see Chapter 9).

## Method

Ethical approval was granted by Bond University Human Research Ethics Committee (BUHREC)—Application ID 15474 (see Appendix A). Data was collected between February and June 2016.

### Participants

A total of 61 respondents voluntarily participated in this study. To be included in the study, participants needed to be currently pregnant (or have a partner expecting if male), or already have birthed or fathered one or more children. Further, English had to be their first language, or they needed to be fluent at reading and writing English. While 65 people began the survey, four subjects did not complete beyond the first half. The corresponding incomplete data was removed from the study.

The sample comprised 54 females (88.5%) and 7 males (11.5%), aged between 19 and 65, ($M$= 38.98, $SD$ = 9.74). Demographics of participants were reported in Table 1. The participants rated the opinion of their pregnancy/s in terms of planning and being wanted, and could rate more than one pregnancy if desired. As a result there were 72 responses across the 61 subjects.

The intention was to gather data from a global population to identify target populations who may benefit from support during the PPN time-frames. Additionally, it was anticipated that an international sample would potentially highlight universal trends enabling inferences about generalisability of the content to be included in future programs.

Recruitment was achieved through the use of various online noticeboards where it was free to advertise information on research studies (e.g., Berkeley Parenting Group), and social media sites worldwide (e.g., Facebook). The advertisements contained links for interested mothers and fathers to complete the online surveys anonymously. Permission was sought and granted from site administrators prior to posting on social media pages, in instances where it was not possible to directly post the request for respondents.

Participation was confidential, voluntary, and anonymous. There was a twenty-dollar compensation per participant, in the form of an online voucher (e.g., Amazon and Coles/Myer), funded by the university faculty. A free e-book on conscious parenting was offered as a further gesture of thanks. To ensure anonymity, no identifying information was collected on the online survey platform. To receive the voucher and e-book, participants were guided at the end of the online survey to contact the student researcher directly. This ensured the student researcher could not link contact details to data entries in the survey, guaranteeing anonymity of the data. Of the 61 respondents, 35 (57.38%) made direct contact via email for a voucher and e-book.

Table 1

*Demographics of Study 1 and Study 2 Participants*

| Variable | N | % | M (years) | SD (years) | Range (years) |
|---|---|---|---|---|---|
| Age | | | 38.98 | 9.74 | 19-65 |
| Gender | | | | | |
| Female | 54 | 88.5 | | | |
| Male | 7 | 11.5 | | | |
| Nationality | | | | | |
| American | 23 | 37.7 | | | |
| Australian/NZ | 26 | 42.6 | | | |
| Canadian | 2 | 3.3 | | | |
| European | 6 | 9.8 | | | |
| Other | 1 | 1.6 | | | |
| Relationship length | 61 | 100.0 | 5.61 | 2.14 | <1 to 20+ |
| Education level | | | | | |
| High school | 13 | 21.3 | | | |
| Vocational | 7 | 11.5 | | | |

| | | |
|---|---|---|
| Diploma | 18 | 29.5 |
| Bachelor's degree | 18 | 29.5 |
| Master's degree | 3 | 4.9 |
| Doctoral | 2 | 3.3 |
| Pregnancy planned and wanted (pl_wa) | | |
| Yes | 46 | 75.4 |
| No | 15 | 24.6 |
| Pregnancy unplanned and wanted (unpl_wa) | | |
| Yes | 21 | 34.4 |
| No | 40 | 65.6 |
| Pregnancy unwanted | | |
| Yes | 1 | 1.6 |
| No | 60 | 98.4 |
| Pregnancy ambivalent | | |
| Yes | 57 | 93.4 |
| No | 4 | 6.6 |
| Attended pregnancy program | | |
| Yes | 23 | 37.7 |
| No | 38 | 62.3 |
| Currently pregnant | 3 | 4.9 |
| Birthed 1+ children | 58 | 95.1 |
| Partner response to pregnancy | | |
| Positive | 36 | 59.0 |
| Mixed | 15 | 24.6 |
| Negative | 9 | 14.8 |

**Materials**

A series of 16 demographic questions plus 24 qualitative open-ended questions were completed by the respondents via the online survey program, Psychdata (see Appendix B).

**Procedure**

Respondents clicked on the link provided in the recruitment advertisements which guided to the online survey titled "Bonding and attachment between mum, dad and baby during pregnancy and beyond" on Psychdata. Upon reading the explanatory statement (see Appendix B) that included information about the student researcher and supervisor, the purpose of the study, the confidential and anonymous nature of participation, approximate time to complete the survey, and support services details should they be needed. Respondents

were asked to indicate their understanding and consent by checking 'Y' before being granted access to the survey questions.

Once consent had been given, respondents completed the demographic and open-ended questions that related to them. Where questions related to certain circumstances (i.e., only relating to people who have birthed their children already), respondents were given clear instructions of action required.

## Results

### Qualitative Analysis

Manual thematic analysis was undertaken to organise, analyse, and examine themes and trends from the information obtained in the open-ended question surveys, ensuring common content was categorised (Braun & Clark, 2006; Tesch, 1990; Weber, 1990). For thematic analysis, the sample size of 61 was deemed adequate to ensure patterns could emerge and reach saturation point (Bernard, 2000; Creswell, 1998; Guest, Bunce, & Johnson, 2006), yet not be too large for data management (Fugard & Potts, 2015). This approach was chosen to make clear comparisons (Braun & Clark, 2006; Miles & Huberman, 1984). The questions included in the online survey were determined and categorised for logical flow and ease. The questions were based on gaps highlighted in the PPN literature specifically pertaining to: (a) existing PPN parenting programs (Collins & Fetsch, 2012; Gottman et al., 2004; Johansson et al., 2011; Vieten & Astin, 2008); (b) critical elements of secure bonding and attaching (Eichhorn, 2012; Harrison & Sidebottom, 2008; Lumley, 1980; Martin, 2003; van Bussel et al., 2010; Wittokowski, Wieck, & Mann, 2007; Young, 2013); (c) impacts of epigenetics during the gestation period (Anacker et al., 2014; Doughty, 2007; Janov, 2009, 2015; Jon & Turner, 2007; Lipton, 2008; Martin, 2003; Serpeloni et al., 2017; Ward, 2004); and (d) mindfulness of expecting parents (Baer, 2003; Burpee & Langer, 2005; Duncan &

Bardacke, 2010; Dunn, Hanieh, Roberts, & Powrie, 2012; Schore, 1994, 2001; Siegel, 2010a).

The data was analysed to allow categories to emerge through thematic analysis, rather than having set categories determined from the onset. This enabled a more experiential approach. The literature supported that this method provides greater accuracy in the analysis of the data (Aronson, 1994; Clarke & Braun, 2013; Dey, 1993; Roulston, 2001). Braun and Clarke's (2006) five-step thematic analysis approach was chosen, as it enables themes to be highlighted to reveal more understanding on research questions when there is a paucity of consistent findings in literature. Additionally, Braun and Clarke's (2006) approach allows for the rigor of auditability, enhancing trust in the findings (Hollins Martin & Robb, 2013). The five-step process was diligently followed to ensure coding represented an accurate reflection of each subject's intended meaning. Themes identified by the author were also confirmed by a second person, who was a professional researcher. The five steps followed for each open-ended question manual analysed included:

1. Familiarising yourself with your data.
2. Generating initial codes.
3. Searching for themes.
4. Reviewing themes.
5. Defining and naming themes.

The online questionnaire contained 24 questions that were thematically analysed. Upon completion of reading the data corpus multiple times, as per step one of Braun and Clarke's (2006) approach to thematic analysis, the verbatim data revealed two clear topics that became the focus for interpretation. The first was *support during pregnancy* (see Appendix B for the 19 open-ended questions that directly related to this topic; denoted by +). The second was *mindfulness: the power of a parent's influence on a prenate* (see Appendix B

for the five open-ended questions that directly related to this topic; denoted by ++). As a result of having these two clear areas of focus, they were analysed and reported in separate chapters in this dissertation. *Support during pregnancy* formulated Study 1, and *mindfulness: the power of a parent's influence on a prenate* became Study 2. The remainder of the results write-up in this chapter references *support during pregnancy* only.

Once the questions that focussed *support during pregnancy* were collated, the author completed step one again, examining the data corpus from the related 19 questions. Based on this, five sub-sections emerged for manual thematic analysis:

1. How current pregnancy programs do not address support needs during pregnancy.
2. Factors that create stress during pregnancy.
3. Self-support (positive and negative strategies).
4. Partner support.
5. Wider support network.

Each was thematically analysed separately and steps two to five of manual thematic approach, recommended by Braun and Clark (2006), were followed. The outcomes are reported below.

**How current pregnancy programs do not address support needs during pregnancy.** Of the 61 subjects, 23 (37.7%) subjects reported attending a program where the focus was on pregnancy education. The remaining 38 (62.3%) did not. The thematic analysis was based on the verbatim feedback of the 23 subjects (only one of whom was male, 2.63%). Three themes emerged when asked about type of pregnancy program attended. They were:

- *Labour and Birth Related*: indicated by participants recording they attended a program delivered by the hospital they birthed at. Examples included: "antenatal classes for labour and birth", "Lamaze", "childbirth".

- *Post Birth Related:* indicated by participants reporting that they attended classes that specifically related to post birth skills. Examples included: “breastfeeding”, “settling”.
- *Conscious Birthing:* indicated by participants recording they attended classes to assist with natural birth. Examples included: “hypnobirthing”, “yoga baby for labour and birth”.

Two themes became evident when asked about topics that were perceived as useful/not useful, and included:

- *Labour and Birth Related*: indicated by participants recording topics relating to labour and birth. Examples included: “stages of labour”, “watching videos of births”, “breathing through labour”, “pain relief options”.

Respondents also identified clear feedback on what topics were not useful. Examples included: “information was too generic and high level”, “delivery was condescending”, “too much focus on invasive procedures”, “too much emphasis in drug options”, “so much focus on what could go wrong, it made me more anxious”.

- *Post Birth Related*: indicated by participants recording topics relating to the fourth trimester. Examples included: “breastfeeding”.

No feedback was provided regarding topics perceived as not useful with this theme. The one male who reported that he attended prenatal classes shared that “knowledge on pain relief options for my wife was helpful”.

When asked to provide details on topics that would have been useful in PPN parenting programs, the same two themes emerged. Examples included:

- *Labour and Birth Related:* “how to have a natural and drug-free birth at hospital”, “how to get what you need during labour and birth at a hospital”.
- *Post birth Related*: “attachment parenting”, “role of dad and how he can bond as he can’t breastfeed”, “bonding and attachment skills”, “how to stay connected as a

couple", "how to work as a team", "how to communicate needs when they differ", "emotional changes", "sleep and soothing training", "how to soothe baby".

The one male stated that he "wanted skills on how to work as a team with his wife and strengthen our relationship".

**Factors that create stress during pregnancy.** The resultant themes, which were consistent between participants regardless of gender, included:

- *Fears*: indicated by subjects recording they were fearful in relation to being pregnant and post birth. Examples included: "I would have a miscarriage", "baby would have birth defects", "terrified of labour", "I'll be a bad parent", "I am unprepared", "I'll die in labour", "I will get it wrong as a parent and make lots of mistakes".
- *Emotions:* indicated by participants responding they had negative emotional responses when pregnant and/or post birth. Examples included: "intense negative emotions", "mood swings", "anxiety", "depression", "self-doubt", "irrational thoughts", "overwhelm".
- *Physical aspects:* indicated by participants responding they had physical responses that were challenging when pregnant and/or post birth. Examples included: "body shape change", "morning sickness", "back pain", "sleep deprivation", "fatigue", "foggy brain".
- *Lack of support*: indicated by participants reporting they felt unsupported during pregnancy and post birth. Examples included: "isolated", "fighting in relationship", "change in couple relationship", "partner does not understand emotional changes", "unsupportive family", "lack of couple time/intimacy", "bullying doctors and nurses through labour and birth".

**Self-support (positive and negative strategies).** The resultant themes identified that participants reported choosing the following strategies to mitigate stress, anxiousness, fear, and worry during pregnancy:

- *Mindful Activities:* indicated by participants reporting that they were consciously choosing positive behaviours that increased awareness of being in the present in the midst of the challenging situation or thoughts. Examples included: "mantras", "breathing exercises", "positive affirmations", "journal", "meditate", "talk to younger self", "gratitude exercises", "Emotion Focussed Therapy" (EFT).
- *Movement*: indicated by participants stating they were choosing various forms of exercise. Examples included: "run", "walk", "yoga", "swim".
- *Seeking Support*: indicated by participants recording they were choosing to talk about and share their situation, feelings, and thoughts with a variety of perceived people who are supportive. Examples included: "partner", "friends/family", "Facebook", "pets", "midwife, doula", "professional counsellor", "helplines".
- *Relaxation:* indicated by participants recording they were choosing to engage in perceived calming activities. Examples included: "massage", "read", "music", "sleep", "gardening", "nature", "sing", "bath".
- *Problem-Focussed Strategies:* indicated by participants recording they were choosing to adopt linear and rational processes. Examples included: "logic", "strategise and prioritise solution", "plan way out", "internet research", "internalise", "action lists", "evaluate all factors".
- *Dissociation Strategies*: indicated by participants recording they were choosing to detach from the immediate situation and thoughts/feelings about it. Examples included: "overeat", "sugar/carbs", "alcohol", "binge watch television", "cannabis", "over-clean", shop", "bite nails".

- *Emotional Responses*: indicated by participants recording they were choosing to respond outwardly with emotions. Examples included: "cry", "temper", "tantrum".

Of note, males did not record any verbatim comments that met the thematic coding for *mindfulness* or *relaxation.*

**Partner support.** Two aspects were thematically analysed under *partner support*. The first was *perceived partner response to the pregnancy*. The resultant themes were three-fold and included:

- *Positive:* indicated by participants recording that their partner was in favour of the pregnancy when hearing about it. Examples included: "joy", "thrilled", "elated".
- *Mixed:* indicated by participants recording that their partner had a dichotomy of responses when hearing about the pregnancy. Examples included: "happy and nervous", "excited and scared", "he did not feel ready to have another child initially, but was happy about it after he had time to adjust".
- *Negative*: indicated by participants recording that their partner was not in favour of the pregnancy when hearing about it. Examples included: "didn't want the baby and wanted me to have an abortion", "scared", "I don't want a baby, what do you want to do?"

The second aspect investigated pertained to ways respondents perceived their partner was supportive during pregnancy. The emergent themes were:

- *Emotionally*: indicated by participants recording that their partner actively engaged in activities that were emotionally supportive. Examples included: "listened", "humour", "quality time", "asked how I was feeling and what my needs were", "talked about the life change together", "shared appreciation", "counselling", "give each other time and space when needed", "ask one another what we need", "give each other positive feedback".

- *Affection*: indicated by participants recording that their partners engaged in physical touch and intimacy. Examples included: “massage”, “foot rubs”, “sex”, “rubbed stretch mark cream in”, “made sure I was comfortable as I got bigger”, “made love”.
- *Practical Support*: indicated by participants reporting their partners took shared responsibility for day-to-day practical life needs being met. Examples included: “cooking”, “shopping”, “chores”, “provided financially”, “took care of the other kids”, “let me sleep in/rest”, “tag team difficult times and situations”.
- *Taking a Genuine Interest in the Pregnancy*: indicated by participants recording their partner was inclusive and took an active interest. Examples included: “I gave him baby books”, “he honoured and protected my birth plan”, “watched birth videos”, “pregnancy classes together”, “came to doctor’s appointments”, “labour support”, “sharing what the baby was doing at different stages”.
- *Not Supportive*: indicated by participants recording they did not provide support for their partner or did not feel they were supported. Examples included: “I shut my partner out”, “was all about what he could do for me”, “I was selfish, it was about me as I as pregnant”, “I was financially and socially isolated during pregnancy”, “work is too busy”, “we grew apart”, “we lived our own lives”, “nothing deliberate; went about our lives”, “we fight a lot”, “we don’t have any connection”, “I have plenty of ideas but there is no engagement from my partner”.

One interesting finding was that of the 54 female participants, 30 (55.56%) reported not considering if their partner had specific needs relating to the pregnancy or transition to parenthood, as it “was all about them”, as they were pregnant. They further reported that it did not occur to them to discover if their partner needed specific support during the pregnancy and transition to parenthood. A further 22 female subjects (40.74%) gave clear examples of being a support to their male partner during the pregnancy and transition to

parenthood. The remaining two (3.70%) did not make comment. All seven participating fathers provided clear examples of support for their partner during pregnancy.

When all participants were asked how they would be more supportive if they were to become pregnant again, examples of responses included: “I’d be kinder”, “more open and loving”, “more patience”, “more talking”, “make my partner feel more a part of things”, “more quality time”, “give more attention to my partner”, “be more supportive of his needs without being asked”.

**Wider support network.** The resultant themes that related to specific support mechanisms (people, things, and practices) that participants reported having in their life overall, included:

- *Spiritual Practice:* indicated by participants recording they found a range of ritualised practices to be supportive. Examples included: “mantras”, “church”, “positive affirmations”, “journal”, “meditate”, “visualisations”, “spiritual teachings”, “prayer”, “EFT”.
- *Movement:* indicated by participants recording they found various forms of exercise to be supportive. Examples included: “run”, “walk”, “yoga”, “swim”.
- *Social Connection*: indicated by participants recording they had a wide array of people (other than partner) to be supportive. Examples included: “friends/family”, “Facebook”, “pets”, “doctor”, “online support groups”, “mum support groups”, “work colleagues”, “professional counsellor”, “in-laws”.
- *Self-Care:* indicated by participants recording that time to relax in a range of ways to be supportive. Examples included: “body work”, “read”, “music”, “sleep”, “time on own”, “nature”, “nutritious food”, “sing”, “bath”.

- *Problem-Focussed Strategies:* indicated by participants recording they found structured activities to be supportive. Examples included: "to-do lists"; "set routine", "Apps to structure time", "Google support groups available".
- *Dissociation Strategies:* indicated by participants recording they found a range of activities that keep them distracted to be supportive. Examples included: "sugar", "shop", "cannabis".

Of note, none of the fathers included any verbatim comments that met the thematic coding for *spiritual practice*, *self-care*, or *dissociative strategies*.

**Quantitative Data Analysis**

The data was analysed using IBM SPSS Statistics 24, and alpha levels of .001 and .05 were considered statistically significant. Chi-squared data analysis was used to ascertain if there was a significant difference in types of support accessed by the parents who participated in Study 1, during a pregnancy (partner, friend, family, work colleagues, social connections, pet, nature, birthing team), depending on perception of partner response to their pregnancy. Incomplete responses by three participants resulted in the sample size for the chi-square analysis being reduced from 61 to 58. All results were interpreted based on Pearson's bivariate correlations. The size of the percentage differences across groups indicated the strength of the association between the independent and dependent variables. For each series of analysis, the applicable Crosstab descriptive data has been included in Table 2.

**Types of support accessed during pregnancy depending on partner response.** There were eight support types, analysed as independent variables that respondents could identify as having accessed during pregnancy (see Table 2). Chi-square analysis revealed significant differences between respondents who did, versus who did not, identify accessing support from either a pet, $\chi^2$ (2, $N$=58) = 6.208, $p$ <.05; or a birthing team (denoted by OB/GYN, midwife, doula, or a combination), $\chi^2$ (2, $N$=58) = 8.384, $p$ <.05. This was based

on perceived partner response to a pregnancy (dependent variable). Specifically, 55.5% of those for whom their partner had a *negative* response to a pregnancy, stated accessing a pet as a source of support during pregnancy. This was compared to 38.9% whose partner response was deemed to be *positive*. *Mixed* responses were reported by 7.7% of participants. Caution needed to be used when interpreting the *negative* response category. This was due to low power, based on sample size, as there were only nine cases in total. Interestingly, 92.3% of people who identified their partner's response was *mixed*, did not access a pet as support.

With regards to a birthing team being accessed as support, 88.9% of those who felt their partner had a *negative* response to pregnancy said *yes* to utilising a birth team as support. As eight out of the nine cases recorded said *yes* to accessing a birth team as support, interpretation due to small case size was not considered cautionary. The occurrence of those accessing a birth team (36.1%), versus those who did not (63.9%), when partner response was *positive* was different, and this is not surprising. When partner response to pregnancy was felt to be *positive* or *mixed*, percentages of those who did access (36.1% and 38.5%), and did not access a birth team as support, were equal (63.9% and 61.5%).

No significant differences were found for people accessing, or not accessing, six of the eight support options based on partner response to pregnancy (partner, $\chi^2$ (2, $N$=58) = 4.453, $p$ = .103, friend, $\chi^2$ (2, $N$=58) = 1.277, $p$ = .528, family, $\chi^2$ (2, $N$=58) = .705, $p$ = .703, work colleague, $\chi^2$ (2, $N$=58) = .329, $p$ = .849, social connections, $\chi^2$ (2, $N$=58) = 3.362, $p$ = .186, and nature, $\chi^2$ (2, $N$=58) = 1.922, $p$ = .382).

Table 2

*Results of Chi-Square Tests with Descriptive Statistics for Type of Support Accessed During Pregnancy by Partner Response to the Pregnancy (N=58)*

| Partner Response | Type of Support Accessed During Pregnancy | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Partner | | | | At least one friend | | | | Family | | | | Work colleagues | | | |
| | Yes | No | df | $\chi^2$ | Yes | No | df | $\chi^2$ | Yes | No | Df | $\chi^2$ | Yes | No | df | $\chi^2$ |
| Positive | 33(91.7) | 3(8.3) | | | 25(69.4) | 11(30.6) | | | 29(80.6) | 7(17.4) | | | 9(25.0) | 27(75.0) | | |
| Mixed | 12(92.3) | 1(7.7) | | | 11(84.6) | 2(15.4) | | | 9(69.2) | 4(30.8) | | | 3(23.1) | 10(76.9) | | |
| Negative | 6(66.7) | 3(33.3) | 2 | 4.54 | 6(66.6) | 3(33.3) | 2 | 1.28 | 7(77.8) | 2(22.2) | 2 | 0.71 | 3(33.3) | 6(66.6) | 2 | 0.33 |

Table 2

*Results of Chi-Square Tests with Descriptive Statistics for Type of Support Accessed During Pregnancy by Partner Response to the Pregnancy (N=58) (continued)*

| Partner Response | Type of Support Accessed During Pregnancy | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Social connections | | | | Pet | | | | Nature | | | | Birthing Team | | | |
| | Yes | No | df | $\chi^2$ | Yes | No | df | $\chi^2$ | Yes | No | Df | $\chi^2$ | Yes | No | df | $\chi^2$ |
| Positive | 13(36.1) | 23(63.9) | | | 14(38.9) | 22(61.1) | | | 8(22.2) | 28(77.8) | | | 13(36.1) | 23(63.9) | | |
| Mixed | 4(30.8) | 9(69.2) | | | 1(7.7) | 12(92.3) | | | 3(23.1) | 10(76.9) | | | 5(38.5) | 8(61.5) | | |
| Negative | 6(66.7) | 3(33.3) | 2 | 3.36 | 5(55.6) | 4(44.4) | 2 | 6.21* | 4(44.4) | 5(55.6) | 2 | 1.92 | 8(88.9) | 1(11.1) | 2 | 8.38* |

*Note:* Number in parentheses indicates column percentages
*$p$<.05

## Discussion

This study represented the first of four in the overall current dissertation project designed to gather data from experts (in this case parents), to inform the development of relevant content, format, structure, delivery types, and timing for future PPN parenting programs. The data were compared with current theory and literature. Each of the five research questions are discussed below, in order.

### Research Question 1: What Types of PPN Interventions do Parents Attend?

The results showed that 73.9% of the 23 parents attended classes that were *labour and birth related* (examples being "antenatal classes" and "Lamaze"). This emphasis of PPN parenting programs focussing predominantly on labour, birth, and skills for how to care for baby post birth, was consistent with literature (Pinquart & Teubert, 2010). However, results of these types of programs did not correlate with strong improvements with parenting capability (Petch & Halford, 2008).

Only one of the 23 participants who reported attending a pregnancy class of some kind was male. This finding was consistent with previous research (Consonni et al., 2010; Darwin et al., 2017; Glynn, Dunkel Schetter, Wadhwa, & Sandman, 2004; Hollins Martin & Robb, 2013; Panthuraamphorn, 1998; Shorey et al., 2017). One study that utilised semi-structured interviews with fathers, found that their lack of involvement centres around long work hours, inconvenience of having to travel to sessions (unless delivered close to home), as well as a preference for self-learning materials instead of classes (Simbar et al., 2010). Other reasons cited for lack of father involvement in prenatal sessions was men not having a clear sense of their father role, and not feeling adequately supported by the community and health system (Kaye et al., 2014). Factors that mitigate father involvement were of interest in Studies 3 and 4, and are reported in Chapters 7 and 8. It is important to be aware that whilst the results mirrored the empirical trend, these findings needed to be interpreted with caution

as they have limited generalisability due to the lack of male respondents (despite the advertisements calling on all parents).

**Research Question 2: What are the Strengths, Gaps, and Limitations in Current PPN Parenting Programs?**

The raw, verbatim data were of interest, as opposed to predefined notions. Respondents stated that when *labour and birth related* classes were attended, the areas where value was perceived included knowing about the "stages of labour", "watching videos of birth", and "how to breathe through labour". However, limitations included perceptions that "information was too generic and high level", "delivery was condescending", "too much focus on invasive procedures", "too much emphasis in drug options", and "so much focus on what could go wrong, it made me more anxious". The one male who attended prenatal classes reported that "knowledge on pain relief options for my wife was helpful". When giving feedback on *post birth related* sessions, responses only pertained to "breastfeeding" information being of value. Hollins Martin and Robb (2013) advocated that programs which provide pregnancy and birth related information that is practical and sensible, enables expecting women to navigate through any fears. However, in the current study, verbatim comments indicated that content may have invoked fear in some instances.

Gaps in knowledge presented in both *labour and birth related* and *post births related* were shared as opportunities for additions in future PPN parenting programs. Examples included: "how to have a natural and drug free birth at hospital", "how to get what you need during labour and birth at a hospital", "attachment parenting", "role of dad and how he can bond as he can't breastfeed", "bonding and attachment skills", "how to stay connected as a couple", "how to work as a team", "how to communicate needs when they differ", "emotional changes", "sleep and soothing training", and "how to soothe baby". The one male

stated that he "wanted skills on how to work as a team with and his wife and strengthen our relationship".

There are a range of programs that focus on behavioural-based skills between parents and with baby post birth, such as the Bringing Baby Home Workshop (Gottman et al., 2004), amongst others (e.g., Collins & Fetsch, 2012; Johansson et al., 2011). In fact, parent training initiatives that focus on the theories of social and behavioural learning have received most empirical validation (Coyne, 2013; Scholl, Hediger, & Belsky, 1994). There is also a range of interventions that include couple relationship building skills as an important aspect during this transition time to parenthood (Halford et al., 2010; Nolan, 1997; Schultz et al., 2006). However, results vary across gender with regards to any improvements in aspects such as couple relationship quality, satisfaction, and communication. There has been some discussion in the literature that implementing programs during pregnancy, and within the first few months post birth, may not be an optimal time for enhancing a couple's relationship (e.g., Maldonado-Duran et al., 2000; Trillinsgaard et al., 2012). This notion was explored further in Study 3 that utilised Delphi methodology with and expert parent cohort (See Chapter 7).

As the respondents in this study suggested opportunities for future PPN parenting programs to include practical labour and birthing aspects that involve buy-in from birth professionals (e.g., "how to get what you need during labour and birth at a hospital"), learning about birth professionals' perspectives needed consideration. This was explored in Study 4, as the role that birth professionals such as midwives, doulas, and OB/GYNs have, may place them in a powerful position to influence quality PPN parenting programs.

**Research Question 3: Are their Differences in Stressors Experienced during Pregnancy and Beyond by Mothers and Fathers?**

When considering stressors during pregnancy, there were no differences in findings between males and females across the four themes that emerged. The themes were: (a) *fears*

(e.g., "the baby will have birth defects", "I'll be a bad parent"); (b) *emotions* (e.g., "self-doubt", "intense negative emotions"); (c) *physical aspects* (e.g., "fatigue", "morning sickness"); and (d) *lack of support* (e.g., "change in couple relationship", "lack of intimacy").

The results regarding mothers were consistent with literature findings. Specifically, mothers reported that common stressors during pregnancy included anxiety about the baby having an abnormality, lack of partner support, financial pressure, fear of giving birth, and fear of not bonding with their baby (Maldonado-Duran et al., 2000). Whilst current research has revealed that fathers often feel a sense of pressure to explore opportunities to increase financial capability (Habib & Lancaster, 2006), and experience stress about how to integrate their new identity as father (Charandabi et al., 2017; Heinowitz, 1995; Naziri & De Coster, 2006), this was not identified in the current study. Due to the small number of fathers who engaged in the study, it could not be determined if the themes that emerged were representative of fathers in general. Also, as 71.43% ($n$=5) of the respondent fathers stated that pregnancy was planned and wanted, and the remaining 25.5% ($n$=2) identified that whilst unplanned (the pregnancy/s occurred earlier than expected) the pregnancy was wanted, it may be that neither stress relating to a transition to the role of becoming a father, nor financial concerns were an issue, as it was something the men had intended in their life.

**Research Question 4: Are there Differences in Coping Strategies Used and Support Accessed through Pregnancy and Beyond by Mothers and Fathers?**

The two constructs of *coping strategies utilised* and *support accessed* are discussed separately, as different sets of themes emerged for each. Coping strategies were explored through a series of questions that were collapsed across the title of *self-support*. The opportunity was provided for responses to be captured that were both positive and negative in the context of managing stress, anxiousness, fear, and worry during pregnancy. Seven clear themes emerged and five of these were consistent between mothers and fathers. They were

*movement* (e.g., "run", "walk"), *seeking support* (e.g., "partner", "Facebook", "pets"), *problem-focussed strategies* (e.g., "action lists", "plan way out", "logic"), *dissociation strategies* (e.g., "overeat", "alcohol", "binge-watch television"), and *emotional responses* (e.g., "cry", "temper").

The finding of no differences between genders for problem-focussed strategies was not aligned with the literature (Banyard & Graham-Bermann, 1993; Hobfoll et al., 1994). However, as females only in the current study recorded responses that were consistent with the themes that emerged in the genre of *emotion-focussed coping strategies* (Huizink et al., 2002b; Lazarus, 1999), *mindfulness* (e.g., "breathing exercises", "journal") and *relaxation* (e.g., "massage", "gardening", "music"), this was in support of literature that posited women utilise emotional-response strategies more so than men (Huizink et al., 2002b).

Both emotion-focussed and problem-focussed coping strategies were commonly cited in the literature (Huizink et al., 2002b). Whilst both types were consistently reported in the current study across genders, other research has reported problem-focussed strategies are used in general life contexts, and not reserved for the time of pregnancy (Carver, Scheier, & Weintraub, 1989; Lazarus & Folkman, 1984). Additionally, it has been posited that more men than women use problem-focussed strategies (Banyard & Graham-Bermann, 1993; Hobfoll et al., 1994). George et al. (2013) stated that *dissociation* and *emotional-response* strategies have been the 'go to' types for pregnant women during times of anxiety (e.g., distraction and substance abuse) when compared to more adaptive options that reflect this study's themes of *problem-focussed strategies, seeking support,* and *mindfulness* (e.g., planning, support from others, and acceptance). These results highlighted the possible need of incorporating adaptive coping skills as one aspect of content for mothers and fathers in future PPN parenting programs, and this was explored further in Studies 3 and 4.

The second part of research question 4 focussed on types of support commonly accessed by the respondents during the time of pregnancy and in the fourth trimester. This was of interest to determine whether providing skills for resource building, along with access to support networks, would be a useful addition to a future PPN parenting program. Two sub-areas of focus became evident through the thematic analysis process. They were *partner support* and a *wider support network*.

When partner as a source of support was considered across genders, the emergent themes included *emotionally* (e.g., "ask one another what we need"), *affection* (e.g., "foot rubs", "sex"), *practical support* (e.g., "chores", "provided financially"), *taking a genuine interest in the pregnancy* (e.g., "watched birth videos", "came to doctor's appointments"), and *not supportive* (e.g., "I was selfish, it was about me as I was pregnant", "we lived our own lives").

The result regarding the theme of *not supportive* was interesting with 55.56% (*n*=30) of the mothers giving direct verbatim feedback that the pregnancy was a time that was 'all about them'. This result suggested little attention was given by women during the time of pregnancy to support that their partners may need (e.g., "was all about what he could do for me"). It was stated multiple times by the mothers that it did not occur to them to offer support to their partner (e.g., "I was selfish; it was about me as I was pregnant"). There was an absence of literature to compare this finding to. Research did indicate that PPN parenting programs tended to discuss ways the father can support the mother exclusively (e.g., Hildingsson & Haggstrom, 1999; Mander, 2004; Plantin et al., 2011). This may result in mothers not considering their partner's need of support. An opportunity exists for future PPN parenting interventions to consider the unique needs of both mothers and fathers equally. Providing strategies on how identified needs can then be met within the partner relationship may be an important next step.

In contrast, all of the fathers in the study gave clear examples of being supportive of their partner (e.g., "listening and taking action on her needs", "empathetic to her needs"). Nearly half (42.86%) of the fathers also identified that they felt left out during the time of pregnancy (e.g., "needed her to be more aware of my needs and wants/fears", "I was shut out", "it became all about her and the baby"). Women were also able to identify that their partner felt left/out, with comments such as "he felt unwanted", "he didn't get any attention", "the expressed feeling last on the priority list". Fathers feeling left out is in alignment with past research findings (e.g., Hallgreen et al., 1999; Kaye et al., 2014); and this has led to the father feeling defeated and anxious (Axness & Strauss, 2007; Charandabi et al., 2017).

All respondents were provided with an opportunity to share if they would be more supportive should they become pregnant again. Of the female responses, 46.3% shared that yes they would be (e.g., "make my partner feel more a part of things", "give more attention to my partner", "be more supportive of his needs without being asked"). Research has suggested that by enabling more connection and involvement of the father in a supportive way, their physical and mental health can be enhanced (Leung et al., 2017; WHO, 2007). It seemed important to learn more about whether expecting parents felt they have the skills for how to include each other and express their needs during this important life transition, and details were sought via Delphi methodology in Study 3.

When *wider support network* was examined six themes emerged. They were: *spiritual practice* (e.g., "mantras", "positive affirmations"), *movement* (e.g., "walk", "yoga"), *social connection* (e.g., "Facebook", "mum support groups"), *self-care* (e.g., "time on own", "bodywork"), *problem-focussed strategies* (e.g., "set routine", "to-do lists"), *dissociation strategies* (e.g., "eat sugar", "shop"). When compared to existing literature, the inclusion of *problem-focussed* (e.g., "logic", "planning") and *emotion-focussed* (e.g., "spiritual practice", "self-care", "social connection") types of support strategies during pregnancy was consistent

(Huizink et al., 2002b; Lazarus, 1999). Of interest was that none of the fathers who responded identified with *spiritual practice, dissociative strategies* or *self-care* as support options. Even with the small male sample size, it did raise the question as to why females only find these strategies to be of support. Current research does not appear to have investigated this specifically. It could be hypothesised that *spiritual practice, dissociative strategies* and *self-care* are examples of *emotion-focussed* support strategies. If this postulation is accurate, then the finding that none of the fathers in the study identified these as being a support option for them is consistent with existing literature (e.g., Huizink et al., 2002b). Further research to investigate this hypothesised view is needed.

What the research did consistently show was that fathers typically felt under-supported during the time of pregnancy, and that a lack of support had negative implications on a range of factors. Examples included: self-confidence, role transition to fatherhood (Axness & Strauss, 2007; Davis et al., 2016; Habib & Lancaster, 2006), the quality of the couple relationship, the capacity for the man to support his partner emotionally (Davis et al., 2016; Heinowitz, 1995; Rosand et al., 2011), and ability for the father to bond with his baby (Della Vedova & Burro, 2017; Klaus & Kennell, 1982; WHO, 2007). Further exploration of what support types are meaningful to fathers was explored in Study 3, to ensure relevant recommendations for future PPN parenting programs could be included.

**Research Question 5: What are the Differences in the Types of Support Accessed by Expecting Parents, Depending on Partner Response to the Pregnancy?**

Chi-square analysis revealed that there were some differences in types of support accessed by participating parents based on partner response to pregnancy. This addressed the hypothesis that for those parents who perceived their partner's response to their pregnancy to be negative, support types outside of the partner relationship would be accessed more so than for those whose partner had a positive response to the pregnancy. Of the eight support types

analysed (see Table 2) there were significant differences on two support types. They were *pet* ($p<.05$) and *birthing team* (denoted by OB/GYN, midwife, doula, or a combination) ($p<.05$), depending on partner response, and this supported Hypothesis 5.

Whilst over half of participants who reported that their partner had a negative response to a pregnancy, identified that they accessed a *pet* as a source of support, compared to 38.9% whose partner response was deemed to be positive, caution is warranted based on small sample size ($n=9$ across all three categories for partner response). Having an attachment to a pet has been found to be significantly correlated ($p=.001$) with perceived social support in a cohort of single mothers (Koontz, 2009). Further, engaging in pet therapy as postnatal support has been linked to lower levels of state anxiety and depression ($p<.0001$) (Lynch et al., 2014). That said, future research could specifically examine the relationship between pet support and negative partner response to a pregnancy.

Of particular interest was the finding that nearly 90% of those who felt their partner had a negative response to pregnancy said *yes* to utilising a *birthing team* as support, especially as 64% of respondents sharing they did not when their partner's response to pregnancy was positive. This highlights the importance of learning more from mothers and birth professionals about what is considered meaningful support during the prenatal time. Additionally, determining the need for collaboration with birth professionals for the creation of content and delivery of any future intervention program was considered important. This was undertaken in Studies 3 and 4.

A non-significant result when *family* as a category was considered ($p = .703$), was consistent with the literature (Buyukkayaci Duman & Kocak, 2013). However, these authors did find that women received social support predominantly from partner and friends, which was not the case in the current study (McKee, Stapleton, & Pidgeon, 2017). Further, whilst no significant differences were found for respondents across the other support options provided

in the questionnaire (see Table 2); this may not be a cause for concern. Specifically, Brugha et al. (1998) found that size of social support did not matter; rather it was more important to be able to access support that could be relied upon when needed. In the case of the current study, in the absence of a favourable partner response to pregnancy, this included *pets* and *birthing team*.

**Limitations**

There were a range of limitations evident from Study 1 that were important to highlight. They are discussed next in the contexts of study design, questionnaire, and quantitative data analysis.

**Study design and questionnaire.** Firstly, by having a questionnaire available for online completion, the depth of analysis was possibly inhibited. A greater richness to the data may have been possible enabling a wider range of interpretation had interviews or focus groups been conducted. This has also been found by others (e.g., Hollins Martin & Robb, 2013).

Secondly, the length of time in relationship with mother/father of child[ren] was asked as a demographic question. In reflection, this question was incomplete. It is acknowledged that data analysis may have been richer had the question been asked in the context of *at the time of discovering the pregnancy*. This would have enabled a more targeted exploration of the data pertaining to *partner response to the pregnancy*, perception of *partner as a support*, *types of support accessed*, and *stress during pregnancy*, to determine whether length of time in relationship acts as a supportive factor during pregnancy. Additionally, data based on this knowledge may have assisted in informing target markets for future PPN parenting programs.

Thirdly, not including a question on birth weight of participants' babies to establish an association to type of pregnancy was a limitation. Past research by Reichman and Teitler

(2003) found that when 10 other risk factors were controlled for, an unwanted pregnancy was associated with lower mean birth weight of a baby when compared to babies for whom the pregnancy was wanted. In the current study, as it was predominantly qualitative study in design, it would have been challenging to control for other risk factors that relate to birth weight. There is an opportunity to link partner response, pregnancy type, and birth outcomes in future clinical studies.

**Quantitative analysis.** When conducting the quantitative analysis three limitations emerged. The first being that due to the low number of cases in some of the variables quantitatively measured, the data set did not support multivariate analysis. As a consequence, results could not be interpreted based on causation. If this study was to be repeated, a larger sample size would be recruited. The data from this study was originally collected for thematic analysis only. However, when themes emerged that could legitimately be converted for quantitative measurement (as they formed natural categories, e.g., *positive*, *mixed*, and *negative*) it presented an opportunity for exploration of the findings in the data. In the future, some questions would be worded differently to lend themselves to continuous or categorical interpretation. For example, when determining *support type* the options would be presented individually with a five-point likert scale response alternatives.

Second, the minimal response by males to this study, whilst congruent with what the literature has found (e.g., Consonni et al., 2010), means that the thematic results may not be reflective of the general father population. The low male response also meant that results could not be discussed in a way that made clear distinctions between the needs of males and females in the context of support during pregnancy. If this study was to be repeated, mothers and fathers would be targeted separately in advertising campaigns for recruitment, instead of advertising for ‘parents’ to complete the study. The goal would be for an equal sample of mothers and fathers and then determine proportions of who attend PPN parenting programs.

This was obvious to the author when one of the male respondents asked prior to his completion if he could fill out the questionnaire, even though the advertisement asked "Are you a parent?" (see Appendix C for a copy of the advertisement utilised). The respondent stated "I assumed it was only for mamas".

**Future Directions**

Study 1 was the first of four conducted in this dissertation to inform the development of future PPN parenting programs for couples embarking on the journey into parenthood. Key learnings from Studies 1 and 2 informed Studies 3 and 4. The findings from across the four studies collectively guided recommendations for future PPN parenting programs. The key outcomes from this study that helped mould the remaining three studies, along with direction for future PPN parenting programs, were:

- adaptive coping skills as one aspect of content for mothers and fathers;
- education on natural and drug-free births and how to ask for it in a hospital setting;
- how to be heard and respected to get your birth plan needs met in a hospital setting;
- skills on how to soothe baby and sleep training;
- skills on attachment parenting;
- skills for how the father can bond with baby post birth;
- skills for couple connection, communication, and working together;
- expertise and wisdom of birth professionals via collaboration in program creation and delivery;
- the need to learn more about factors that mitigate father involvement in PPN parenting programs to-date;
- the need to learn more about whether expecting parents felt they have the skills for how to include each other and express their needs during this important life transition;

- what support types are meaningful to fathers during the time of pregnancy and post birth; and
- the need to investigate the appropriateness of a version of PPN parenting programs to be delivered pre-conception, to maximise planning for pregnancy and welcoming a baby consciously.

Chapter 9 outlines a detailed discussion of recommendations for future programs.

Two clear topics resulted from the analysis of the verbatim comments in Study 1. The following chapter and Study 2 were dedicated to the second topic of *mindfulness: the power of a parent's intentional influence on a prenate.*

## Chapter 6: Mindfulness: The Power of a Parent's Intentional Influence on a Prenate

### Study 2 Rationale

Research in the fields of PPN psychology, neuroscience, mindfulness, and attachment theory has highlighted the importance of bringing contemplative practices (e.g., self-observation) into PPN parenting programs. Findings from previous research show the potential of contemplative practices in influencing expecting parents' levels of connectedness and attunement to developing prenates (Davis & Hayes, 2011). Some research has posited that an expecting mother's thoughts, emotions, and behaviours experienced during pregnancy may impact the prenate and their subsequent perception of the *world* (Lipton, 2002, 2008; Michaud, 2012). This notion was discussed in Chapter 2, whereby Panthuraamphorn's (1998) study found that maternal thoughts, feelings, and behaviours may positively influence personal-social development of babies, when measured by the Denver Developmental Screening Test.

Further, there has been a call for "early childhood policy and practice to have a better understanding of the extent to which early experiences are incorporated into the developing brain for better or for worse" (Shonkoff, 2011, p.982). Specifically, Shonkoff (2011) advocated for "interventions that will enhance the mental health executive function skills, self-regulation capacities of mothers beginning in pregnancy, and that suggest promising strategies to protect the developing brains of their children" (p. 983). Results from previous studies have supported that mindfulness-based interventions could be developed to also enhance secure bonding and attachment between mothers and babies (Atzil et al., 2013; Siegel, 2011). These findings, amongst others detailed within this chapter that support the benefits of mindfulness-based practices for parents and prenates during the PPN time-frames, influenced the rationale for Study 2.

As stated in the Chapter 5, Study 2 was an extension of Study 1 and utilised the same sample when exploring views of modern-day mothers and fathers. The focus of Study 2 was on parents' perceptions of the impact that being mindful throughout a pregnancy and birth may have on the couple relationship, as well as on the prenate. The findings were then used to inform questions asked in the two Delphi methodology studies discussed in Chapters 7 and 8.

The purpose of this chapter is to introduce mindfulness and to examine existing research on mindfulness in the context of the PPN parenting programs. The theoretical frameworks of attachment (Ainsworth et al., 1978; Bowlby, 1969), mindfulness (Siegel, 2011, 2012), response styles (Nolen-Hoeksema, 1991), and stress and coping (Duncan & Bardacke, 2010) are discussed throughout.

**Mindfulness Defined**

Mindfulness has been defined as engaging in regular, habituated activities that consciously focus on being aware of, and influencing, what is happening in the body and mind in the present moment (Kabat-Zinn, 1990; Michaud, 2012). The intention of mindfulness is to cultivate greater levels of self and other awareness, leading to compassionate conscious choices (Baer, 2003; Burke, 2010; Kabat-Zinn, 1990; Michaud, 2012). This definition includes three key underpinnings of mindfulness. They are *Intention*, *Attention*, and *Attitude* (IAA) (Shapiro, Carlson, Astin, & Freedman, 2006). *Intention* is the skill of consciously switching attention from unhelpful habits, thoughts, and behaviours to options that are healthier for self and others (Burke, 2010). *Attention* has been defined as the ability to have focussed and sustained attention on thoughts, emotions, and actions, which may lead to intentional shifts away from less ideal to healthy choices (Kabat-Zinn, 1990). Mindfulness-based practice has been grounded in the third key aspect, *Attitude*, which includes attributes such as compassion, being non-judging, trust, acceptance, and curiosity

(Shapiro et al., 2006). Shapiro et al. (2006) found that a shift in perspective occurred when IAA was cultivated simultaneously. This may lead to people having a more adaptive range of coping skills to manage life events, such as pregnancy and the transition to parenthood. Both life contexts formulated the focus of this chapter.

**Benefits of Mindfulness**

The literature has detailed many theorised benefits of human beings engaging in intentional thoughts, emotions, and actions as they navigate daily life. Examples include: (a) a sense of connection with others (Thompson, 2001); (b) flexibility in responses to perceived problems and challenges (Siegel, 2007); (c) ability to relate to others and perceive and respond to others' needs (Fulton, 2005); (d) empathy (Walsh & Shapiro, 2006); (e) emotional regulation in the brain (Corcoran, Farb, Anderson, & Segal, 2010; Wallin, 2007); (f) rewiring of neurological pathways away from prior learning to new response options based on present-moment awareness (Siegel, 2007, 2012); (g) wellbeing (Carmody & Baer, 2008; Roy Malis et al., 2017); (h) positive affect (Farb et al., 2010); (i) reduced levels of anxiety, depression, stress (Braeken, Jones, Otte, Nyklicek, & Van den Bergh, 2017; Dhillon, Sparkes, & Duarte, 2017; Hoffman, Sawyer, Witt, & Oh, 2010); and (j) reduced reactivity (Goldin & Gross, 2010; Siegel, 2007).

While the literature was more limited when the time-frames of pregnancy and the transition to parenthood were considered, benefits have been identified (when couples choose to be mindful in their thoughts and behaviour) and included: (a) relationship satisfaction between couples, due to being able to constructively communicate in-the-moment during times of stress (Carson, Carson, Gil, & Baucom, 2006; Wachs & Cordova, 2007); (b) reduced maternal pre and postnatal emotional distress (Braeken et al., 2017; Duncan et al., 2017; Shi & MacBeth, 2017); (c) mother-infant bonding (Michaud, 2012), and (d) ability for the baby once born to self-regulate both psychologically and biologically (Korja et al., 2017; Michaud,

2012; Thomas et al., 2017). Determining whether existing parents' perceived mindfulness to be important as a topic to be included in future PPN parenting programs was of interest, and was explored in Studies 2 and 3.

**The Impact of not being Mindful on a Prenate**

As discussed in Chapter 1, research has postulated that a prenate experiences a birthmother's emotions, both positive and challenging ones, through the secretion of hormones that cross the placenta (Chamberlain, 1998). For example, when a mother consistently perceives events and situations during pregnancy to be stressful, the prenate may be the recipient of stress hormones (e.g., Christensen, 2000; Lazarus & Folkman, 1984; Peckham, 2013). Mothers being mindful by choosing to change negative thoughts and emotions to healthier ones may assist prenates to attain normal levels of development (Chamberlain, 1998; Van de Carr & Lehrer, 1998). More recent research has proposed that creating a safe in-womb environment through mindfulness-based interactions between an expecting couple and their prenate, may form the basis of secure attachment for the baby post birth (Eichhorn, 2012).

There has been a small yet growing emergence of research that has examined the effectiveness of PPN parenting interventions incorporating mindful and intentional practices towards mitigating maternal stress, anxiety, and depression (e.g., Dunn et al., 2012; Giardinelli et al., 2012; Goodman et al., 2014; Wilson & Wilson Peters, 2013); navigating childbirth (e.g., Duncan & Bardacke, 2010; Hauck et al., 2016); and making a successful transition to parenthood as a couple (e.g., Gambrel & Piercy, 2015).

**Impacts of maternal stress, anxiety, and depression.** A plethora of research has focussed on the impact of maternal stress, anxiety, and depression on prenates. Siegel (1999) purported that one mind (pregnant mother) can influence the activity and development of another (prenate), through the transfer of energy. Thoughts and emotions of the pregnant

mother being exchanged to the prenate is one example. McCraty, Bradley, and Tomasino (2004) suggested that transferred thinking and emotional patterns may imprint on the growing brain of the prenate. This may further impact the future health of the prenate as they become biochemically primed to respond to life events outside of the womb in the way they were 'taught' in the womb (Lazarus & Folkman, 1984; Wilson & Wilson Peters, 2013).

Maternal anxiety, depression, and stress (i.e., daily hassles, state and trait anxiety, pregnancy related anxiety, relationship challenges, and life event stress) can increase the risk of adverse neurodevelopmental (O'Donnell et al., 2009), emotional developmental and psychological wellbeing (Aktar & Bögels, 2017) outcomes in newborns, due to prenate exposure to the maternal environment and in the months post birth. Siegel (2010a) further suggested that the quality of neural pathways and synaptic connections for future relational skills of a developing prenate (and infant once born), are influenced by the quality of relational interactions provided by primary caregivers starting in the prenatal period. The ability of expecting mothers and fathers to provide quality mindful interactions with a prenate may be directly related to their levels of stress experienced (Rifkin-Graboi, Borelli, & Bosquet Enlow, 2009).

In response to Rifkin-Graboi et al.'s (2009) hypothesis, participating parents in Study 2 were directly asked (a) how often they mindfully interacted with their prenate during pregnancy (especially during times of stress where they were experiencing emotions such as anger, frustration, sadness, or hurt); and (b) their belief about the extent to which their baby may have been influenced by their thoughts, emotions, beliefs, and moods during the pregnancy. Beneficial outcomes and challenges may result for mothers, fathers, and babies depending on whether mindfulness skills are practiced by expecting parents (e.g., pausing and being present in-the-moment and meditation), and are discussed next.

The use of mindfulness-based practices may help foster secure parent-baby attachment (Eichhorn, 2012; Siegel, 2010a) since the more expecting parents can be attuned to their habitual thoughts, emotions, and actions, the more conscious positive choices can be made when relating to the prenate. The objective of expecting parents being attuned is to promote thoughts, emotions, and actions that are aligned with secure attachment. Examples include having thoughts that welcome the baby based on the baby being wanted and loved, and as a couple choosing to have respectful communication with each other (Siegel, 2010a). From a neuroscience perspective, mindfulness-based practices may stimulate innovative healthy and positive ways of thinking and feeling. With repetition over time, new styles of thinking may create new neural pathways in the brain that become new habits (Siegel, 2011). In the context of the mother-baby connection in-utero, the new habit may be modelling a secure attachment relationship (Siegel, 2011). The parent sample in Study 2 was asked to identify the content of thoughts had during pregnancy as well as what they said to their baby during pregnancy, in an attempt to learn if mindfulness-based communication skills would be beneficial to include in future PPN parenting programs.

Research supports that expecting mothers who participate in conscious communication and dialogue with their prenate (Raffai, 1997; Schroth, 2010), may experience reduced stress levels and greater ability to manage stressful situations in a positive way (Dunn et al., 2012). Conversely, disorders such as anxiety and depression (Greeson, Garland, & Black, 2014) may prevail when a person (a) is unaware of their unhelpful thought processes and emotional responses to life experiences and stressful events; and (b) does not change behaviour to be aligned with healthy, connection oriented options such as finding positive aspects to a current situation (Greeson et al., 2014). This was theorised to be due to attentional bias being focussed on the unhelpful aspects of a current situation (Greeson et al., 2014).

In alignment with the concept of fetal programming (Sandman & Glynn, 2009) discussed in Chapter 1, Harris and Seckl (2011) reasoned that as a result of the constant biochemical interplay between mother and prenate during pregnancy, a pathway may be created for intergenerational transmission of responses to life events (both positive and negative). In response, there has been a call for pregnant women to be educated on intentional stress-reduction management practices (Harris & Seckl, 2011; Isgut et al., 2017), and parents' perceived need for this skill-set was assessed in Study 2. Kluny and Dillard (2014) concurred and championed mothers being taught mindfulness skills to mitigate stress experienced during pregnancy and to create a healthy biochemical environment for the prenate. Kluny and Dillard (2014) acknowledged the challenge for expecting mothers to avoid stress with modern-day society and busy lifestyles filled with competing demands. However, a mother being able to prevent or reduce stress has been shown to be important for the provision of a calm environment for a developing prenate (Chamberlain, 2013; Michaud, 2012; Wilson & Wilson Peters, 2013).

**Summary**

Mindfulness has been defined as consciously engaging in focussed thinking, feeling, and behaving in the present moment (Baer, 2003; Burke, 2010; Kabat-Zinn, 1990; Michaud, 2012). Many benefits of being mindful have been reported, both during day-to-day life, such as emotion regulation in the brain (Corcoran et al., 2010; Wallin, 2007) and during the PPN time-frames. Examples are increased relationship satisfaction within the couple relationship (Carson et al., 2006; Wachs & Cordova, 2007), and mother-infant bonding (Atzil et al., 2013; Michaud, 2012).

Challenging outcomes may result for prenates when parents are unable to be mindfully in-tune with them via conscious choices of moods, thoughts, and behaviours that reflect a safe and loving in-utero environment (Lipton, 2002, 2008; Michaud, 2012).

Examples of challenges cited include: impaired social, emotional, and cognitive development (Aktar & Bögels, 2017; Chamberlain, 1998; Ferreira, 1960, 1969), and reduced ability for secure bonding and attachment (Eichhorn, 2012). The quality of a prenate's neural pathways and synaptic connections in the brain needed for relationship development can be influenced (and compromised) depending on how expecting parents interact with each when stressed, anxious, or depressed (Siegel, 2010a).

Research revealed that pregnant mothers report experiencing reduced stress levels when mindfully using stress management skills throughout a pregnancy (Dunn et al., 2012; Kluny & Dillard, 2014; Raffai, 1997; Schroth, 2010). The Study 2 questionnaire assessed parental attitudes towards the inclusion of stress management skills in future PPN parenting programs. This was in response to extensive literature on mindfulness-based approaches that have focussed on stress, anxiety, and depression experienced by mothers during the PPN time-frames. Pertinent mindfulness-based approaches and related empirical studies are discussed next, both as a general introduction and in the context of PPN parenting programs.

**Mindfulness-Based Approaches**

Two leading mindfulness-based approaches that have been examined in the PPN context have been studied and discussed widely in the literature. They included Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002).

MBSR was the first of the approaches developed in the 1970s. This was created originally to assist people with chronic pain (Kabat-Zinn, 1990). The program was delivered in a group setting, spanning eight sessions on a weekly basis, with homework tasks included. The curriculum included moving and sitting meditations, stress reactivity, coping strategies, and ways for respondents to become present and intentional during engagement in many routine daily tasks such as eating and communicating (Burke, 2010). The second approach,

MBCT, utilised the same skills as MBSR and also included psycho-education and Cognitive Behavioural Therapy (CBT) based tools adapted specifically for treating adults with depression (Segal et al., 2002). The approach was later adapted for adults who experienced anxiety (Evans et al., 2008) and mood disorders (Ree & Craigie, 2007). Both MBSR and MBCT are embedded in Buddhist philosophy that meditative practices can enhance mental, physical, and emotional health (Baer, 2003). The efficacy of both MBSR and MBCT has been examined extensively through both clinical and non-clinical empirical research since the turn of the 21st century; MBSR has been more extensively researched than MBCT. Adult populations who have experienced stress, chronic pain, eating disorders, addictions, cancer, anxiety, and depression (e.g., Baer, 2003; Ivanovski & Malhi, 2007) have been studied. When physical and psychological health has been measured (Baer, 2003), meta-analysis results revealed medium effect sizes (*d*=.50-.59) for problems such as reduced pain in chronic pain sufferers, relapse prevention with substance abuse cohorts, increased coping skills when stressed, self-regulation when anxious, cognitive change away from unhelpful beliefs, reduction in panic attacks and reduction in binge eating episodes.

**Mindfulness for the prenatal time.** A range of PPN parenting programs have focussed on mindfulness skills that target reducing stress, anxiety, and depression experienced by mothers and fathers during the time of a pregnancy, and have been reviewed in the literature. Programs and related studies that influenced Study 2 of the current research are discussed below.

***Mindfulness-Based Childbirth and Parenting (MBCP) program.*** An adaptation of MBSR (Kabat-Zinn, 1990) for use during the prenatal time is the MPCP program, developed by Bardacke (1998). The aim of the program was to promote wellbeing, adaptive coping strategies, and reduce negative impacts of stress on mothers and prenates during pregnancy. This was achieved through intentional meditation practices (Duncan & Bardacke, 2010).

These principles were drawn from the revised Stress and Coping Theory (Lazarus, 1997, introduced in Chapters 1 and 5). The aim was to target the innate challenges of emotional, bodily, and lifestyle changes that unfold during pregnancy that can be experienced as stressful by some expecting mothers (Duncan & Bardacke, 2010).

The efficacy of Bardacke's (1998) MBCP program was evaluated via a pilot study that utilised 35 pregnant mothers in their second and third trimesters of pregnancy. Participants were based in California, USA (Duncan & Bardacke, 2010). It was hypothesised that participants would report reduced stress, anxiety, and depression, as well as increased mindfulness and positive affect upon completion of the program (Duncan & Bardacke, 2010). The program encompassed nine, three-hour sessions that were administered weekly. Throughout the program, participants were taught mindfulness meditation and given practice-time in class. Additionally, they were required to use the skills at home for 30 minutes a day, six days a week. Social connection and support between participants was cultivated to mitigate possible isolation in the immediate time post birth. To achieve this, group sharing was encouraged and social time was built into each session (Duncan & Bardacke, 2010). Content topics spanning nine sessions included: bonding; childbirth experiences; yoga; body scan technique; silent meditation; loving kindness meditation; breastfeeding; and the biological, social, and emotional needs of a newborn (Duncan & Bardacke, 2010).

Statistically significant improvements ($p<.05$) were observed pre- to post-test, where paired *t*-tests revealed large effect sizes for reductions in anxiety ($d=.81$) and increased mindfulness ($d=.74$) (Duncan & Bardacke, 2010). These results were in support of the researchers' hypothesis and of Stress and Coping Theory (Duncan & Bardacke, 2010). A further 85% of the participating expecting mothers stated that they used the meditation techniques during times of stress upon completion of the program (Duncan & Bardacke, 2010). These results were consistent with previous research (Carmody & Baer, 2008;

Carmody, Baer, Lykins, & Olendzki, 2009), which provided preliminary support for the benefits of a mindfulness-based intervention that focusses on the prenatal time may be a useful influencer on chosen stress response. This may have a potential positive effect on the prenate in terms of reduced stress-based biochemicals being transmitted across the placenta (Harris & Seckl, 2011; Wilson & Wilson Peters, 2013).

Limitations of the study included small sample size and absence of a control group. This was consistent with other research on mindfulness-based practices for the prenatal period (Baer, 2003). An opportunity exists in future research involving PPN parenting programs for pregnant couples to offer randomised clinical trials that include a waitlist control group.

***Coping and anxiety through living mindfully.*** As discussed in earlier chapters the prevalence rate for women to experience anxiety during pregnancy (with between 12% and 39% of pregnant women diagnosed with one or more specific anxiety disorders, Giardinelli et al., 2012). Maternal anxiety has been linked to negative maternal, birth, and postnatal outcomes. Examples include: birth complications, reduced neurodevelopment of the prenate, low birth weight babies, inability to breastfeed, and challenges with mother-infant bonding (e.g., Berle et al., 2005; Cantwell & Smith, 2006; Dunkel Schetter, & Tanner, 2012; George et al., 2013; Giardinelli et al., 2012; Milgrom et al., 2008).

Factors related to women's predisposition to anxiety during pregnancy have included hormonal changes, stress, fear of pregnancy outcomes and of labour and birth, change in lifestyle, and subsequent impacts on partner relationship, as well as physical discomfort (Wenzel, 2011). Mindfulness-based interventions have been tested in non-clinical settings with significantly improved outcomes on anxiety, stress, and depressive levels in pregnant populations (e.g., Duncan & Bardacke, 2010; Dunn et al., 2012; Roy Malis et al., 2017). However, these clinical studies did not include specific treatment of maternal anxiety using

mindfulness-based interventions. In an effort to close this gap, Goodman et al. (2014) adapted MBCT to target these issues and created the Coping and Anxiety through Living Mindfully (CALM) Pregnancy program.

A pilot study of the CALM program was conducted with 23 pregnant women reporting elevated anxiety symptoms, recruited from hospitals and obstetric practices in Boston, Massachusetts, USA. Baseline scores were assessed with the Penn State Worry Questionnaire and the GAD-7 (Goodman et al., 2014). CALM was adapted to include: (a) the traditional tools and skills of MBCT (as identified earlier), (b) mindfulness practice to be used during childbirth (Bardacke, 2012), and (c) self-compassion and self-acceptance when experiencing anxiety during the pregnancy (Germer, 2012; Roemer, Orsillo, & Salters-Pedneault, 2008). The pilot program was delivered by a trained facilitator and included two-hour weekly sessions over eight weeks. Homework activities were assigned in accordance with MBCT protocol, and participants were required to complete pre- and post-intervention self-report questionnaires (Goodman et al., 2014).

Results from repeated measures ANOVAs revealed statistically significant improvements in levels of anxiety, worry, and depression ($p<.01$). Significant improvements were also reported for self-compassion and mindfulness ($p<.01$). Participants were asked for feedback on what was useful from the CALM program. Responses included: learning from other women in the group, mindfulness skill building, decreased reactivity when anxious, increased insight, and self-kindness (Goodman et al., 2014).

Three prominent limitations of Goodman et al.'s (2014) evaluation of the CALM program included the absence of a control group, small sample size (limiting the ability to report conclusions that were generalisable), and possible bias from self-report measures of change. Nevertheless, the statistically significant results suggested that the CALM program may be an effective, non-pharmaceutical based intervention for women with maternal anxiety

(Goodman et al., 2014). Despite this, the finding of "mindfulness skill building" was of particular interest in the context of Studies 3 and 4 of the current research program, and the perceived need of mindfulness skills as content for inclusion in future PPN parenting programs was examined using samples of expert parents and birth professionals drawn from global populations. Study 2 addressed the limitations highlighted in Goodman et al.'s (2014) study and is discussed in the summary of limitations provided later in this chapter.

In summary, research has shown that if a pregnant woman experiences stress, anxiety, worry, or depression, so does the prenate by way of chemical transfers across the placental barrier (O'Donnell et al., 2012). These transfers may also work in a positive direction (Chamberlain, 2013). Thus, if a mother experiences an increase in psychological and emotional wellbeing via PPN parenting programs such as CALM, constructive post-birth outcomes may result. Examples include: enhanced bonding and attachment between mother and baby, increased ability to start and maintain breastfeeding, and an optimistic transition to parenthood for a couple (Goodman et al., 2014).

In addition to promoting adaptive coping strategies to reduce stress and anxiety, as well as related impacts on a mother and her prenate, mindfulness-based programs have been generated to include and support both mothers and fathers through the time of pregnancy. One recent study is discussed next.

***Mindfulness-Based Childbirth Education (MBCE) program.*** Adapted from MBSR, the MBCE program was designed to include both expecting mothers and fathers. Aims of the program were three-fold and included: increased confidence in how to be a supportive partner, how to birth, and how to parent (Hauck et al., 2016). The group program incorporated skills-based mindfulness education spanning eight, 2.5 hour sessions, facilitated weekly. Content included mindfulness meditations, pregnancy journey, challenges to being

intentional in thoughts and behaviour, yoga for labour and birth, and mindful parenting (Hauck et al., 2016).

A small pilot study of MBCE was conducted in Australia using a repeated-measures design. Participants included 12 pregnant women and their partners. Key outcome measures were: mindfulness; depression, anxiety, and stress; childbirth self-efficacy; and fear of childbirth (Byrne, Hauck, Fisher, Bayes, & Schutze, 2014). Statistically significant improvements ($p<.01$) were found for childbirth self-efficacy and childbirth fear from pre- to post intervention. Whilst the result for mindfulness was not statistically significant, there was an increase in engagement of mindfulness techniques taught in the program by the end of the MBCE program ($p=.058$) (Byrne et al., 2014). A limitation included the lack of randomised control group which, as previously identified, could be addressed in future research.

PPN parenting programs that have included mindfulness-based skills have now extended beyond the scope of mothers' and fathers' wellbeing during a pregnancy. Recent studies have also focussed on the use of mindfulness-based skills during the transition to parenthood for couples.

**Mindfulness use for the transition to parenthood.** In the context of transition to parenthood, mindfulness studies have traditionally focussed on stress management (Singh et al., 2010), marriage and family therapy, anxiety, and pain tolerance (Gambrel & Piercy, 2015). Few studies have explored mindfulness-based techniques in PPN parenting programs that targeted couples during pregnancy (Duncan & Bardacke, 2010; Dunn et al., 2012; Gambrel & Piercy, 2015; Hughes et al., 2009); however, one recent study has focussed on this.

***Mindful Transition to Parenthood program.*** Gambrel and Piercy (2015) developed the Mindful Transition to Parenthood Program for couples expecting their first child. The four-week program was derived from the theoretical underpinnings of interpersonal

neurobiology (Siegel, 1999) and the MBSR program (Kabat-Zinn, 1990). The program was designed to increase couple relationship satisfaction that is common once the transition to parenthood has occurred (Cowan, 1992; Feinberg et al., 2015) (see Chapter 2 for a detailed discussion).

Interpersonal neurobiology draws largely on concepts from Attachment Theory, mindfulness and neuroscience, and is based on Siegel's (1999) perspective that brain development of a prenate, infant and child occurs in part as a result of a parent's/primary caregiver's attuned caregiving and attachment skills. Siegel (1999, 2010b) stated that in order to provide optimal caregiving that enables secure attachment for the baby (Cassidy & Shaver, 1999), a parent needs to be attuned. Attunement has been defined as "how we focus our attention on others and take their essence into our own inner world" (Siegel, 2010b, p. 34). By being attuned, Siegel (2007, 2011) posited that new neural networks and pathways are created in the brain, enabling new ways of thinking, acting, and overall behaving. To be attuned, a person (in the context of this study, a parent) needs to exercise focussed attention by first pausing in the moment (Siegel, 2011). The intention is for expecting parents and partners in couple relationships to behave in ways that lead to positive emotional regulation, reduced negative reactivity to life events and situations, healthy stress management, and secure attachment in the couple relationship (Gambrel & Piercy, 2015). The pivotal focus on *attention* with *intention* described is in alignment with Shapiro et al.'s (2006) key underpinnings for mindfulness (IAA) discussed earlier in this chapter.

The premise underlying Shapiro et al.'s (2006) interpersonal neurobiology is that when a person (parent) can attune to what is happening within themselves (this requires the skills taught in mindfulness practice), this in turn can lead to enhanced attunement as to the impact chosen ways of being in relationship have on others.

The Mindful Transition to Parenthood Program included four content topics that were delivered across four sessions, facilitated weekly to groups of couples. The themes included mindfulness of self, partner, relationship, and family (Gambrel & Piercy, 2015). In a phenomenological study, 13 non-distressed couples from the East Coast of the USA completed the program. The couples also participated in a 45-minute, semi-structured interview conducted one week post program completion. The aim was to determine respondent experiences in the program. Four themes emerged from the interviews (Gambrel & Piercy, 2015): positive changes for self (e.g., "regulating emotions"), improvements in couple relationship (e.g., "communication with partner more direct and harmonious"), more prepared for the arrival of baby (e.g., "accepting potential challenges in the transition to parenthood"), and male involvement (e.g., "increasing involvement in the pregnancy as I felt heard").

Limitations of the study highlighted were the lack of use of a clinical-based experimental methodology, which resulted in neither the long-term effects of the program nor its effectiveness (when compared to a control group) being measured. Second, traditional MBSR programs involve eight sessions (Kabat-Zinn, 1990) and Gambrel and Piercy's (2015) study included four. Future research could compare the four-week Mindful Transition to Parenthood program with an eight-week equivalent to determine how many sessions are needed for effective results (Gambrel & Piercy, 2015). With this in mind, perspectives of parents and birth professionals regarding optimal length of overall PPN pregnancy programs, as well as ideal length of each session within a program, were explored in Studies 3 and 4. The outcomes informed recommendations for the design, development, and delivery of new PPN parenting programs (see Appendixes L, U, and W).

**Summary**

The two mindfulness-based approaches discussed in this chapter were Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy (MBCT; Segal et al., 2002). Whilst both approaches utilise similar skills to enhance meditative practices aimed to enhance health and wellbeing, the cohorts targeted expanded beyond the original population of people with chronic pain (MBSR) to include anxiety, depression, and mood disorders (MBCT).

In the context of the PPN time-frames, numerous programs and related studies focussed on improving factors such as mental and emotional wellbeing for mothers, fathers, and as a consequence, babies. Examples included the Mindfulness-Based Childbirth and Parenting program (Duncan & Bardacke, 2010) and the Mindfulness-Based Childbirth Education program (Hauck et al., 2016).

Recently, clinical studies have begun to use mindfulness-based interventions to treat maternal anxiety. One leading study introduced the CALM program (Goodman et al., 2014), adapted from MBCT and resulted in statistically significant improvements in levels of anxiety, worry, depression, and self-compassion (Goodman et al., 2014).

Another key study emphasised mindfulness as a practice for parents to incorporate into their life during the transition to parenthood using the Mindful Transition to Parenthood program (Gambrel & Piercy, 2015). This program was derived from MBSR and the science of neurobiology (Siegel, 1999). The aim of the program was to enhance mindfulness within partner relationships and on the prenate (Gambrel & Piercy, 2015), through the implementation of four content topics. Results from the study supported positive changes for expecting mothers and fathers.

**Limitations**

Despite these advances, an array of limitations were identified across the studies discussed and included: (a) small sample sizes; (b) the absence of randomised control groups in some studies; (c) the inability to determine causal outcomes due to the correlational approaches taken in data analysis; (d) the use of self-report measures exclusively, introducing the possibility of respondent bias; and (f) lack of clinical experimental methodology to determine long-term effects of the program being measured.

Considering these limitations in the context of Study 2 (and as previously outlined in Study 1), sample size was calculated in alignment with thematic analysis best-practice (Fugard & Potts, 2015). The use of a control group was not relevant to Study 2 as no experimental designs were utilised. With regards to self-reporting, respondents in Study 2 were required to self-report their beliefs and perceptions. However, due to the exploratory nature of the study, this was considered appropriate. No validated self-report measures were used, again due to the non-inclusion of experimental design.

Further empirical literature has focussed on mindfulness-based programs that target the PPN time-frames (e.g., Duncan & Bardacke, 2010; Vieten & Astin, 2008). Results have largely been positive, including: (a) reduced maternal stress, anxiety, and depression (e.g., Duncan & Bardacke, 2010; Harris & Seckl, 2011); (b) a healthy biochemical environment for mother and prenate (Kluny & Dillard, 2014); and (c) enhanced capacity for caregiver-prenate secure attachment. This has been shown to influence the ability for a person experiencing securely attached relationships throughout the lifespan (e.g., Fonagy, 2001; Siegel, 2010b).

As the inclusion of mindfulness-based skills in PPN parenting programs has not been widespread, it was included as a topic of interest in Studies 2, 3, and 4 of the current research. The scope across the studies was limited to ascertaining perceived value of incorporating

mindfulness-based skills in future PPN programs that may be of benefit to expecting couples and their babies.

### Study 2 Aims and Research Questions

As with Study 1, Study 2 was exploratory in design and elicited subjective perceptions and experiences from a sample of both mothers and fathers.

Two research questions shaped Study 2:

1. Do expecting mothers' and fathers' thoughts, emotions, beliefs, moods, and quality of the partner relationship influence their prenate?
2. To what extent do mothers and fathers consciously choose to communicate with their baby throughout pregnancy?

Study 2 aimed to extend current empirical evidence by exploring mindfulness-based behaviour of mothers and fathers toward their prenates. The information obtained informed questions included in the online questionnaire for Studies 3 and 4.

## Method

As outlined in the previous chapter, Studies 1 and 2 utilised the same sample of parents during data collection. The two studies were reported separately as two independent topics emerged during the thematic analysis process. Hence, the methodology used in Study 2 was identical to Study 1 (detailed in Chapter 5) and has not been repeated in this chapter. Please refer to Chapter 5 for the methodology write-up and to Table 1 (p. 98) for the demographics of participants. Results, subsequent discussion, limitations, and suggestions for further research relating to Study 2 are discussed.

## Results

### Qualitative Analysis

The exact process for manual thematic analysis as outlined in Study 1 was followed for Study 2 (for a full review of the analysis process see Chapter 5). In brief, Braun and

Clarke's (2006) five step thematic analysis approach was utilised, and themes uncovered by the author were confirmed by a second researcher, who had experience in thematic analysis. Of the 24 questions in the online survey that were thematically analysed across Studies 1 and 2, five related to the topic of this chapter (see questions denoted ++ in Appendix B).

From a methodological perspective, as with Study 1, once the five questions that related specifically to mindfulness were pooled, Braun and Clarke's (2006) five step thematic analysis process was diligently adhered to. The steps followed included:

1. Familiarising yourself with your data.
2. Generating initial codes.
3. Searching for themes
4. Reviewing themes.
5. Defining and naming themes.

Based on this, two sub-sections were identified for analysis and discussion. They were (a) perceptions about whether a prenate may be influenced by a parent's thoughts, emotions, beliefs, moods, and quality of partner relationship during the pregnancy; and (b) regularity of mothers and fathers talking to their prenate during the pregnancy in general and when difficult conversations that involved emotions such as anger, frustration, sadness, or hurt were occurring between the expecting couple.

***Do expecting mothers' and fathers' thoughts, emotions, beliefs, moods, and quality of the partner relationship influence their prenate?*** Data analysis revealed four themes when respondents were asked to share their perceptions regarding whether expecting mothers' and fathers' thoughts, emotions, beliefs, moods, and quality of partner relationship influence their prenate in-utero, and baby post birth. They were:

- *Definitely Yes:* indicated by participants recording they believed that a baby can be influenced by thoughts, emotions, beliefs, moods, and quality of partner relationship

during pregnancy. Examples included: “I was stressed and my baby doesn’t settle”; “my husband and I fought a lot and baby is insecure”, “they are sentient and learn about life while growing inside”, “my pregnancy was calm and I was supported and my child is self-assured”, “babies are fully conscious in-utero”, “first pregnancy we were nervous and that baby is nervous and clingy. Second pregnancy we were calm and baby is relaxed”, “they are an extension of the mum”, “goes for both positive and negative emotions”, “they know no other way of sensing their place in the world than through the emotional tone of the unborn environment”; “how my partner and I are, impacts me, which impacts baby”, “the baby can sense the energy of the parents”.

- *Somewhat:* indicated by participants recording they somewhat believed that a baby is influenced by thoughts, emotions, beliefs, moods, and quality of partner relationship during pregnancy. Examples included: “to some extent”, “it all impacts the baby and I don’t know how to quantify how much the impact is”.
- *No:* indicated by participants recording they did not believe that a baby is influenced by thoughts, emotions, beliefs, moods, and quality of partner relationship during pregnancy. Examples included: “makes no difference”, “babies are not influenced by moods in the womb”, “there are no long-term effects on a baby”, “there is no influence during a pregnancy”.
- *Unsure:* indicated by participants recording they were unsure if a baby is influenced by thoughts, emotions, beliefs, moods, and quality of partner relationship during pregnancy. Examples included: “not something I am aware of”, “it may just be all fate, where the baby is meant to experience whatever happens in the womb”.

Of the mothers *(n*=54) 77.78% (*n*=42) responded *yes*; 3.70% (*n*=2) answered *somewhat*; 3.70% (*n*=2) stated *no*; 9.26% (*n*=3) responded being *unsure* and a final 11.00% (*n*=5) chose to not respond. Of note, the fathers (*n*=7) identified with either *yes* (66.66%) or

*unsure* (33.33%) only. Further, one participating father shared that he thought only the mother would influence a prenate with her thoughts, emotions, beliefs, and moods during pregnancy.

***Regularity of mothers and fathers talking to their prenate during a pregnancy.*** Four themes became evident from parents when asked about the regularity with which they would talk to their prenate during the pregnancy, and included:

- *Often*: indicated by participants recording talking to their prenate daily. Examples included: "daily", "both talked to and sang"; "when anything came along that felt unsafe or upsetting I assured her it was mine, not hers and not to worry", "how are you doing in there?", "I would ask him how he was feeling, what part of him was growing today".
- *Sometimes:* indicated by participants recording talking to their prenate once they could feel movement. Examples included: "quite funny sitting on the couch singing wiggles songs to my wife's belly", "talk to them about relevant things—footy and camping and fishing".
- *Rarely:* indicated by participants recording talking to their prenate on the odd occasion. Examples included: "I don't think I got that I should on a regular basis".
- *Never*: indicated by participants recording they did not talk to their prenate at all. Examples included: "not at all"; "it is too early", "it seems silly to have a running conversation with them in-utero".

Of the 61 parents 50.82% (*n*=31) of responses created the theme of *often*; 13.11% (*n*=8) related to *sometimes*; 21.32% (*n*=13) matched the theme of *rarely* and 13.11% (*n*=8) of responses were associated with *never*. One person (1.64%) chose to not answer the questions. There were no differences in the pattern of responses between mothers and fathers.

***Talking to the prenate when difficult conversations that involved emotions such as anger, frustration, sadness, or hurt were occurring between the expecting couple.*** Two themes were evident when parents were asked whether they talked to their prenate during times when they were having difficult conversations as a couple (denoted by emotions such as anger, frustration, sadness, or hurt being present). The themes were:

- *Yes:* indicated by participants recording clear agreement. Examples included: "I explained it logically to the baby", "that is wasn't their fault that they were ok, I was ok", "it will be all right, it will be fine, do not worry. I will take care of you", "my wife would talk to the baby and say things like "don't worry, mum and dad are just tired and got upset. We still love you and each other", "sorry bubba".
- *No:* indicated by participants recording clear disagreement. Examples included: "I wish I had", "I wasn't conscious about it", "no that seems crazy. I don't really think of the baby as a separate entity yet", "I never talked to the baby about it because it was so early on", "I didn't know any better back then", "no, but that would have been a good idea", "I had no part in talking to the baby while inside my wife", "did not consider it".

Of the 61 respondents 19.67% (*n*=12) shared responses that related with the theme of *yes*; 73.77% (*n*=45) with *no*; and two people (6.56%) chose to not respond. There were no differences in the pattern of responses between mothers and fathers.

## Discussion

This study represented Study 2 of the current research project. As with Study 1, it was designed to gather data to inform the development of relevant content for future PPN parenting programs. The data was compared with current theory and literature and each of the research questions is discussed in order.

**Research Question 1: Do Expecting Mothers' and Fathers' Thoughts, Emotions, Beliefs, Moods, and Quality of the Partner Relationship Influence their Prenate?**

The results showed that the majority of participant mothers and fathers reported *definitely yes* in response to research question 1. This was expressed by comments such as "I was stressed and my baby doesn't settle". This awareness and perception was consistent with research pertaining to early childhood policy making and practices (Shonkoff, 2011), neuroscience (Hruby & Fedor-Freybergh, 2013; Lipton 2002, 2008; Siegel, 2010b, 2011), Attachment Theory (Atzil et al., 2013; Siegel, 2011), and PPN psychology where it is purported that maternal thoughts, emotions, moods as responses to internal and external events faced during pregnancy, may be experienced by a prenate via biochemical hormones crossing the placental barrier (Chamberlain, 2013; Lazarus & Folkman, 1984; Weinstein, 2016).

Of interest was the verbatim response by one of the participating fathers where it was perceived that "only the mother would influence a prenate with her thoughts, emotions, beliefs, and moods during pregnancy". Whilst conclusions could not be drawn from this statement given it was one person's perspective, it was consistent with research where the focus was on the impact of the expecting mother's influence on the prenate (Chamberlain, 1998; Harris & Seckl, 2011; Kluny & Dillard, 2014; Van de Carr & Lehrer, 1988).

Research that explored the impact of perceived level of partner support on a mother's thoughts, emotions, beliefs, and moods during pregnancy could impact a prenate (e.g., Atasever & Altun, 2017; Brugha et al., 1998; Harrison & Sidebottom, 2008; Heinowitz, 1995; Lumley, 1980; Sidebottom et al., 2017), was discussed in the literature review presented in relation to Study 1 (see Chapter 5). The literature review revealed a gap in empirical research of the lack of direct measurement of the influence of the expecting father's

thoughts, emotions, beliefs, and moods during the pregnancy on the growing prenate. This presented an opportunity of focus for future research.

Attachment Theory (Ainsworth et al., 1978) was relevant when perception about the quality of partner relationship as an influencing factor on the prenate was considered from research question 1. Prior research indicated that interactions between a couple during the time of pregnancy, that facilitate a safe and secure attachment environment between the couple (e.g., via respectful and loving communication, having understanding for differences in opinion), may lay the foundation for secure attachment for the baby (Eichhorn, 2012). This was evidenced in the current study with verbatim comments such as "how my partner and I are, impacts me, which impacts baby", and "the baby can sense the energy of the parents", and "my husband and I fought a lot and baby is insecure". Further, from a neuroscience perspective, research has indicated that the quality of the relational interactions provided by an expecting couple, impacts the neural pathways and synaptic connections that relate to relationship skills of a developing prenate (Rifkin-Graboi et al., 2009; Siegel, 2010b).

Given that ten of the participating parents responded either *no* or *unsure*, it may be valuable to include educational content in future PPN parenting programs that is grounded in the science of PPN psychology that includes mindfulness, to address the potential influence of parental thoughts, emotions, beliefs, moods, and quality of partner relationship during pregnancy on a prenate. Questions were included in Studies 3 and 4 that utilised Delphi methodology (see chapters 7, 8, and 9 for results) to address this.

**Research Question 2: To What Extent do Mothers and Fathers Consciously Choose to Communicate with their Baby throughout Pregnancy?**

When examining the second research question, two areas were investigated. They included (a) the regularity of talking to the prenate; and (b) talking to the prenate when difficult conversations that involved emotions such as anger, frustration, sadness, or hurt

were occurring between the expecting couple. When regularity of talking to the prenate was considered, the themes of *often*, *sometimes*, *rarely* and *never* emerged. With 63.93% of participants responding either *often* or *sometimes*, this spoke to awareness in parents that a prenate may well be conscious and influenced by what is happening to them in the in-utero environment.

This finding was consistent with PPN psychology literature (e.g., Chamberlain, 2011, 2013; Emerson, 1993) and Attachment Theory (Bowlby, 1988). Specifically, mindfulness research has shown that for couples who intentionally communicated with each other in a constructive way during times of stress, relationship satisfaction increased (Carson et al., 2006; Wachs & Cordova, 2007). This positively impacted a growing prenate's brain and psychosocial development (Aktar & Bögels, 2017; Rifkin-Graboi et al., 2009). The remaining 36.07% of participating parents in Study 2 identified as either *rarely* or *never* communicating with their prenate consciously. While perceived importance of parents communicating with their prenate through the time of pregnancy has been identified (e.g., Magnani, 2017; Verny & Kelly, 1981), the impacts of parents doing so has not been directly measured in existing literature.

Curiously, even though 63.93% of participating parents reported talking to their prenate *often* or *sometimes*, 73.77% of parent participants stated *no* when asked whether they talked to their prenate when difficult conversations that involved emotions such as anger, frustration, sadness, or hurt were occurring between the expecting couple (e.g., "no that seems crazy. I don't really think of the baby as a separate entity yet", "no, but that would have been a good idea"). Only 19.67% stated *yes* (e.g., "my wife would talk to the baby and say things like "don't worry, mum and dad are just tired and got upset. We still love you and each other"). This indicated that while expecting parents did mindfully communicate with their prenate, the majority did not when times were stressful within the couple relationship.

Given that the research showed that quality of couple relationship can be an influencing factor on the prenate's physical (Joyce, 1990), cognitive (Siegel, 2010b, 2011), psychological and social functioning (Doss et al., 2009), as well as on attachment style (Chamberlain, 2011; Young, 2013), there appears to be a divide between research and lay person (parent) knowledge. Including current research as educational content in future PPN parenting programs may be one way to close this gap in knowledge. Perceived need was explored in Studies 3 and 4.

**Limitations**

There were two limitations introduced in Study 1 that directly applied to Study 2, due to the studies being the same in terms of participants and methodology. Firstly, by having the questionnaire available for online completion, the depth of analysis was possibly inhibited. This may have been overcome if interviews or focus groups were conducted and this has been found by others (Hollins Martin & Robb, 2013).

Secondly, the minimal response by males to this study, whilst congruent with the literature (e.g., Consonni et al., 2010), indicated that the thematic analysis results may not be reflective of the general father population. Further, it was not possible to discuss the results based on gender differences. If this study was to be repeated, mothers and fathers would be targeted separately in advertising campaigns for recruitment, instead of advertising for 'parents' to complete the study. The goal would be to recruit an equal sample of mothers and fathers and then determine proportions of who attend PPN parenting programs.

**Future Directions**

The results from Study 2 was used to develop and inform the questions utilised in Studies 3 and 4 which included the perceived need for: (a) education on the influence of the expecting father's thoughts, emotions, beliefs, and moods during the pregnancy on the mother and growing prenate; (b) education on the potential influence of thoughts, emotions,

beliefs, moods, and quality of partner relationship during pregnancy on a prenate; (c) skills on how to be mindful with thoughts, emotions, and actions; (d) skills on how to communicate mindfully with a prenate during times of stress, conflict, and challenge, and (e) education drawing on neuroscience, explaining brain development of a prenate during pregnancy and the fourth trimester (McKee, Stapleton, & Pidgeon, 2018).

**Next Chapter**

The next chapter is dedicated to introducing and discussing Study 3 that utilised Delphi methodology with an expert panel of parents. A literature review that focussed on factors that contribute to effective adult education in general, and also in the PPN parenting program context is presented. A literary overview of Delphi methodology is also included.

The relevant outcomes from both Studies 1 and 2 used to inform Study 3's research questions are discussed. The methodology, results, and an associated discussion of outcomes and limitations from Study 3 is detailed. Finally, a list of parent panellist recommendations of factors that ought to be included and considered in the design, development, and delivery of future PPN parenting programs is offered.

# Chapter 7: Delphi Expert Parent Study—Factors Needed for Future PPN Parenting Programs

## Study 3 Rationale

To maximise physical, mental, and emotional outcomes for mothers, fathers, and babies through the transition to parenthood, identifying the most effective and appropriate factors for PPN parenting programs for the 21st century is of paramount importance. As discussed in earlier chapters, pregnancy is often a time where mothers report higher anxiety than normal (Tremblay & Soliday, 2012). Further, the PPN time-frames are often associated with a reduction in satisfaction and bonding in the couple relationship (Davis et al., 2016; Halford et al., 2010; Mortensen et al., 2012) and an increase in negative communication and diminished support between the expecting couple (Halford, Lizzio, Wilson, & Occhipinti, 2007). Babies can be negatively impacted by the challenges experienced by mothers and fathers. For example low birth weight (Coley & Nichols, 2016; Eastwood et al., 2017; Jackson, 1995), which is deemed to be one of the most important indicators of health for a baby in the months following birth (Hussaini et al., 2011), as well as impaired bonding (Field et al., 2010; Tohotoa et al., 2012).

Research supports the need for PPN parenting programs of the future to be designed to meet the specific needs of parents if sessions are to be meaningful and valuable to them (Ayiasi et al., 2013). This includes learning about the needs of parents regarding program aspects including knowledge, skills, support, and logistics such as location, modes of program delivery, and access to resources (Alalshaikh, 2015; Jaddoe, 2009; Lotrecchiano, McDonald, Lyons, Long, & Zajicek-Farber, 2013). A thorough exploration is warranted, as researchers have questioned whether existing PPN parenting programs are commensurate with the needs of modern-day parents (Hauck et al., 2016; Jolivet & Corry, 2010).

As discussed in previous chapters, the research is varied and inconclusive with regards to many factors related to PPN parenting program offerings. Examples include: program timing and length, whether both mothers and fathers ought to attend sessions, most effective content and delivery methods of information, criteria for who is most effective and qualified to facilitate programs, and location for programs to be delivered. Due to the inconsistencies highlighted, Study 3 was designed. The aim was to learn more from both mothers and fathers who attended PPN parenting programs through at least one pregnancy, about what factors they perceived to be of most value, and Delphi methodology was utilised. The overarching intention was to determine whether parents who met predetermined expert criteria could reach consensus on items pertaining to PPN parenting programs being effective.

A second Delphi methodology study was conducted (Study 4), to compare the parent panellist findings with those from a panel of birth professional experts. The goal was to broaden the context of learnings related to what factors may meet the needs of parents during pregnancy, birth, and the fourth trimester. This fourth and final study of the dissertation followed the same methodological process as described later in this chapter. Therefore, only the pertinent methodological aspects, results, and recommendations for Study 4 have been discussed in Chapter 8.

The comprehensive discussion of PPN parenting programs and the importance of fathers, presented in Chapters 2 and 3, along with Studies 1 and 2, formed the basis for the content and rationale behind Studies 3 and 4, which are presented in the following two chapters. The aim of this chapter is to briefly explore the existing literature on: (a) factors that constitute effective adult learning, (b) adult learning components in the context of PPN parenting programs, and (c) the Delphi methodology for reaching agreement on a topic of interest that has mixed or no clear findings.

Additionally, Study 3's research questions and methodology are presented, and results that emerged from the study are detailed, and compared, to existing literature on adult learning and PPN parenting programs. The chapter closes with recommendations for future PPN parenting programs.

## Adult Learning

The literature review conducted in the area of adult learning identified numerous categories for consideration when designing, developing, and delivering programs targeted to adult learners in general, and expecting parents fall into this genre. They included: (a) content effectiveness (Northwest Center for Public Health Practice [NWCPHP], 2012), (b) the training environment (NWCPHP, 2012), (c) delivery methods (Alalshaikh, 2015; Bryson, 2013), (d) facilitator characteristics (Comings, Beder, Reder, Bingman, & Smith, 2003; NWCPHP, 2012), (e) session and program length, and (f) the location for program delivery (NWCPHP, 2012). Each is discussed below and examples relevant to PPN parenting programs are included throughout.

**Content effectiveness.** There are numerous factors considered important when developing content. Specifically, content needs to be: (a) immediately relevant and useful to the audience members' current life situations (e.g., pregnancy) (Alalshaikh, 2015; NWCPHP, 2012), and be a match for participants' perceived needs (Gibson, 2016); (b) evidence-based and drawn from scientific research (Comings et al., 2003); (c) inclusive of up-to-date theories and resources (Comings et al., 2003); and (d) focussed on ensuring information is easy to understand (Bryson, 2013), practical (Malone, 2014), and yet challenging enough to maintain interest and add to participants' current skill and knowledge levels (Malone, 2014).

In the context of PPN parenting programs, the evidence-based literature review revealed a wide array of topics for inclusion that were considered relevant, useful, and

necessary for inclusion in programs. Examples (in no particular order of importance) included:

1. healthy lifestyle of mother during pregnancy including nutrition and exercise during pregnancy (Campbell et al., 2004; Dunneram & Jeewon, 2015; Edvardsson et al., 2011; Elsinga et al., 2008; Guelinckx, Devlieger, Mullie, & Vasant, 2010; Hui et al., 2006; Jackson, 1995; Lombard, Deeks, Ball, Jolley, & Teede, 2009; Zwelling, 1994);
2. immunisation (Ayiasi et al., 2013; Jongen et al., 2014);
3. breathing for labour and birth (Consonni et al., 2010; Panthuraamphorn, 1998);
4. breastfeeding (Godin et al., 2015; Raeisi, Shariat, Nayeri, Raji, & Dalili, 2013; Sahip & Turan, 2007; Tohotoa et al., 2012);
5. options for labour and birth, including natural, home-based, and medically-assisted births (Barrett et al., 2015; Billingham, 2011; Zwelling, 1994);
6. the role of being a father (e.g., Deslauriers et al., 2012; Kiselica, 2008; Sahip & Turan, 2007; Tohotoa et al., 2012);
7. developmental milestones during pregnancy (Billingham, 2011; Ferguson & Vanderpool, 2013; Kiselica, 2008);
8. transition to parenthood (Billingham, 2011; Cowan, 1992; Mortensen et al., 2012; Walsh et al., 2014);
9. effective communication for couples (Gordon & Feldman, 2009; Halford et al., 2003; Halford et al., 2010), including how to express emotions that may arise (Barth, 2009; Dion, 2005);
10. bonding and attachment (Martin, 2003);
11. self-care (Dion, 2005);
12. genetic engineering (Glover & Sutton, 2012; Janov, 2009; Lipton, 2008; Shonkoff & Fisher, 2013;Weinhold, 2012; Zwelling, 1994);

13. substance use during pregnancy (Edvardsson et al., 2011);
14. social support (Brownell, Chartier, Au, & Schultz, 2011; Edmonds, Paul, & Sibley, 2011; Edvardsson et al., 2011; Feinberg et al., 2015; Halford & Petch, 2010; Renzaho & Oldroyd, 2014);
15. conflict management (Feinberg et al., 2015; Halford, 2004; Trillingsgaard et al., 2012);
16. strengthening the couple relationship (Brixval et al., 2016);
17. stress-reduction skills (Shonkoff & Fisher, 2013);
18. mindfulness skills for stress, labour and birth, and couple connectedness (Braeken et al., 2017; Burke, 2010; Duncan et al., 2017; Gambrel & Piercy, 2015; Singh et al., 2010); and
19. postnatal depression (Coley & Nichols, 2016).

**Training environment.** The ideal training environment has been defined as one that is welcoming to all, where participants feel safe to contribute (NWCPHP, 2012; Taylor et al., 2012). In the PPN parenting program context, this definition extends to include environments where participants are being empowered in their roles as parents (Landy et al., 2012). Additionally, adults learn best in training environments where they have a choice in the: (a) content (Hauck et al., 2016; Malone, 2014; Taylor et al., 2012); (b) delivery methods, such as in-person (Hauck et al., 2016; Sinclair, 2013), online webinars and online video resources (Hauck et al., 2016; NWCPHP, 2012; Trillingsgaard et al., 2012), self-directed learning from home via video (e.g., Zwelling, 1994), and manuals/books (Lotrecchiano et al., 2013; Raeisi et al., 2013); and (c) ways that they can contribute in sessions (Gibson, 2016). This is perceived to create an atmosphere of autonomy, which enables self-reflection (Malone, 2014) and a sense of control (Gibson, 2016; Hauck et al., 2016; Malone, 2014; Millar, 2003).

Further, a group environment is seen to be a useful environment with adults to instil a sense of social support (Barth, 2009). PPN parenting programs that are delivered in group settings have been associated with higher incidences of breastfeeding, greater retained content knowledge (Billingham, 2011), and reduced feelings of stress (Koushede et al., 2017). Quirk, Owen, Inch, France, and Bergen (2014) found that for couples who attended education sessions in group formats, relationship confidence and reduced negative communication were reported post program, when compared to couples who attended in a couple format. The inclusion of a social network (e.g., closed group Facebook page) for the participants to interact with each other outside of the program is well regarded (Billingham, 2011; Nolan, 2017; Taylor et al., 2012; Walsh et al., 2014). When fathers were considered, research showed that a father-only environment was desired to enable discussions about fears, and issues related to being a father, being openly spoken about (Deslauriers et al., 2012).

**Delivery methods.** Research suggested that adults in general learn best when information is delivered in a way that enables interaction, discussion, and the sharing of relevant life experiences and stories by the audience (Bryson, 2013; Comings et al., 2003; Gibson, 2016; NWCPHP, 2012). This was opposed to passive approaches such as lectures and reading books (NWCPHP, 2012). In the PPN parenting program context, the inclusion of case studies, role plays, and small group discussions (Dion, 2005; Deslauriers et al., 2012) where the suggested group size ranged between two to eight people (Gray & McCormick, 2005) and 15 to 20 people (Landy et al., 2012); along with opportunities to practice new skills and receive feedback, was seen as important (Brixval et al., 2016; Comings et al., 2003; NWCPHP, 2012).

Additionally, providing adult participants with take home exercises that relate to the content delivered in sessions has been shown to reinforce learning and continued engagement

(Bryson, 2013; NWCPHP, 2012). This finding has been corroborated in the PPN parenting program literature (e.g., Billingham, 2011; Hauck et al., 2016). In fact, it is thought that adults remember up to 90 percent of material when they have been able to practice the material (NWCPHP, 2012). Further, both generally, and in PPN parenting program arenas, enabling and encouraging adult participants to practice material learned in sessions at home, can lead to in-depth understanding of content. Incorporating home practice as a program component allows participants to be able to choose practice times that suit them depending on competing life demands, such as work and family commitments (Lotrecchiano et al., 2013).

Using a multimedia approach to deliver program sessions has been shown to assist in the retention of information for adult learners in general, as well as in the context of PPN parenting programs. Examples include the use of short lecture with question and answer time, videos, guest speakers, participant sharing, handouts, information-technology platforms and Apps, online self-paced activities between sessions, journal articles, and informational websites (Alalshaikh, 2015; Bryson, 2013; Cunningham, Lewis, Thomas, Grilo, & Ickovics, 2017; Gazmararian et al., 2014; Godin et al., 2015; Lotrecchiano et al., 2013; NWCPHP, 2012; Trillingsgaard et al., 2012).

To maintain audience attention, interest, and retention of information, content is best delivered in a variety of ways to match different learning styles of audience members (Gibson, 2016; Neuhauser et al., 2007). Typical learning styles include visual (e.g., handouts, videos), auditory (e.g., discussion, asking questions), and kinaesthetic (e.g., role plays, working through case studies) (Alalshaikh, 2015; Gibson, 2016; James & Shephard, 2010; Malone, 2014; Yu-Chih, Yu-Ching, & Sanchez, 2013). Zhou (2013) concurred that the ideal design for PPN parenting programs is one that incorporates the different learning styles to enhance retention of information presented to participants. That said, determining the specific learning styles of the individual participants can be challenging and time-consuming

(Alalshaikh, 2015). However, failure to do so can result in delivery styles being used inappropriately (Yu-Chih et al., 2013).

**Facilitator characteristics.** Common characteristics associated with effective facilitators of adult education sessions (including PPN parenting programs) are:

- presenting in a manner that is engaging, fun, flexible in approach, and shows respect for the audience (Bryson, 2013; Millar, 2003; NWCPHP, 2012; Zwelling, 1994);
- being passionate about the content (NWCPHP, 2012);
- drawing on and building the strengths of the audience members (Comings et al., 2003). This can be achieved through positive reinforcement of contributions provided in sessions (Gibson, 2016), as well as the facilitator taking the time to understand the needs of individual audience members (Bryson, 2013);
- instilling curiosity in the audience, as it is shown to maximise growth of participants (Bryson, 2013);
- supporting diversity of participant educational and cultural backgrounds (Alalshaikh, 2015), and knowledge (Bryson, 2013);
- remaining open to differing opinions and alternative perspectives on material presented, and being judgement and discrimination free (Bryson, 2013; Taylor et al., 2012);
- encouraging participation and interaction (Bäckström et al., 2017; Gibson, 2016) by developing trust (Landy et al., 2012);
- having a sense of humour (Landy et al., 2012; Millar, 2003; Taylor et al., 2012); and
- having an interdisciplinary team (e.g., midwife, childbirth educator, and nurse). This may enhance levels of discussion due to the wide scope of experiences and levels of expertise that can be drawn upon (Gray & McCormick, 2005; Lotrecchiano et al., 2013).

When PPN parenting programs were examined, facilitators were typically: (a) nurses (Coley & Nichols, 2016; Edvardsson et al., 2011; Glover & Sutton, 2012; Korfmacher, O'Brien, Hiatt, & Olds, 1999; Landy et al., 2012; Penfold, 2015; Robling et al., 2016); (b) male childbirth educators (Davis et al., 2016; Fletcher et al., 2006; Tohotoa et al., 2012); (c) midwives (Edvardsson et al., 2011; Glover & Sutton, 2012; Jongen et al., 2014; Titaley, Dibley, & Roberts, 2010); (d) doulas (Coley & Nichols, 2016); (e) general practitioners or OB/GYNs (Brixval et al., 2016; Zwelling, 1994); and (f) parents (Heath & Palm, 2006; Korfmacher et al., 1999).

**Timing and length of program and individual sessions.** There has been no agreed upon standard for the most effective time for expecting parents to begin or end PPN parenting programs. Existing programs begin at interconception—the time between pregnancies (Rosenbach, O'Neill, Cook, Trebino, & Klein Walker, 2010), preconception (Dunneram & Jeewon, 2015), trimester one (Edvardsson et al., 2011; Godin et al., 2015; Zwelling, 1994), trimester two (Feinberg et al., 2015; Robling et al., 2016), and trimester three (Halford et al., 2010; Jaddoe, 2009; Landy et al., 2012). Some programs end post birth; ranging from three, six, to 12 months after birth (Edvardsson et al., 2011; Sahip & Turan, 2007; Trillingsgaard et al., 2012).

Similarly, when timing is considered, the length of individual sessions and entire programs, amount of time between sessions, as well as number of sessions presented as anomalies in the literature. Examples of length of individual sessions included: between 50 minutes and three hours throughout a program (Consonni et al., 2010), one hour (Halford & Petch, 2010; Tohotoa et al., 2012), two hours (Carmody & Baer, 2009; Collins & Fetsch, 2012; Halford & Petch, 2010; Jaddoe, 2009; Panthuraamphorn, 1998), two and a half hours (Brixval et al., 2016; Koushede et al., 2017), and three hours (Sahip & Turan, 2007; Trillingsgaard et al., 2012).

The total number of sessions of any given PPN parenting program varied from three (Brixval et al., 2016), four (Ayiasi et al., 2013; Gambrel & Piercy, 2015), five (Halford & Petch, 2010; Pinquart & Teubert, 2010), six (Halford et al., 2010; Jackson, 1995; Sahip & Turan, 2007), eight (Carmody & Baer, 2009; Coley & Nichols, 2016; Jackson, 1995), 10 (Halford & Petch, 2010), 13 (Collins & Fetsch, 2012), 18 to 20 (Edvardsson et al., 2011), and a full weekend (Robbers, 2009; Shapiro & Gottman, 2005).

Overall length of PPN parenting programs varies also, with no consistent standard reported. Non-exhaustive examples include: five months spanning trimester three to three months post birth (Halford et al., 2010), nine months spanning the three trimesters of gestation (Zwelling, 1994), two years beginning at the start of pregnancy (Edvardsson et al., 2011; Hussaini et al., 2011), and trimester one until 18 months post birth (Edvardsson et al., 2011).

**Categories specific to PPN parenting education.** In addition to the program design categories discussed above, there were three specific factors drawn from the literature that related to PPN parenting programs. These included target audience, equality in the inclusion of fathers, and program delivery locations.

***Target audience.*** The three main target audiences of PPN parenting programs along with examples of existing programs from each cohort were detailed in earlier chapters (refer to Chapters 2 and 3 for full review). In the essence of brevity, the three target groups are named again here, as learning more about to whom sessions of future PPN parenting programs are best targeted, is one aspect explored in the current study of the dissertation. The cohorts are expecting mothers-only (e.g., Consonni et al., 2010; Glover & Sutton, 2012; Godin et al., 2015; Hollins Martin & Robb, 2013; Hussaini et al., 2011; Landy et al., 2012; Panthuraamphorn, 1998; Robling et al., 2016), expecting fathers-only (e.g., Carlson et al., 2014; Deslauriers et al., 2012; Habib & Lancaster, 2006; Humphries & Nolan, 2015; Sahip &

Turan, 2007; Tohotoa et al., 2012), and expecting couples together (e.g., Billingham, 2011; Cowan, 1992; Davis et al., 2016; Halford et al., 2010; Mortensen et al., 2012; Pinquart & Teubert, 2010; Plantin et al., 2011; Robbers, 2009; Simbar et al., 2010).

The focus of this chapter is learning more about PPN parenting programs that have targeted specific parent groups. Examples include: (a) teen mothers (Baytop, 2006; Coley & Nichols, 2016; Robling et al., 2016; Taylor et al., 2012), (b) teen fathers (Billingham, 2011; Taylor et al., 2012; Walsh et al., 2014), (c) first-time parents (Godin et al., 2015; Jackson, 1995; Mortensen et al., 2012), (d) single mothers (Salihu et al., 2014), and (e) disadvantaged groups such as low income families (Gray & McCormick, 2005) and migrant families (Quirk et al., 2014; Renzaho & Oldroyd, 2014).

Regardless of parent cohort group, the literature posited that for PPN parenting programs to be most supportive of pregnancies, programs ought to be implemented as early as possible in the pregnancy (Hauck et al., 2016). Doing so may result in optimal birth outcomes that include: mothers birthing full-term; the birth weight of babies being healthy; breastfeeding success; positive cognitive, social, emotional, and relational development of babies post birth (Gray & McCormick, 2005; Neuhauser et al., 2007); and enhanced bonding and attachment between parents and their babies (Neuhauser et al., 2007).

***Equality in the inclusion of fathers in PPN parenting programs.*** As identified in Chapter 3 that focussed on the importance of fathers, the role of the father in the 21st century is multifaceted. Duties have expanded beyond the traditional financial obligations (Zvara et al., 2013) to include actions such as co-parenting and emotional support for the mother (Davis et al., 2016; Zvara et al., 2013). Men have reported feeling a myriad of challenging emotions, including overwhelm and frustration (Premberg et al., 2008), as well as uncertainty about how to fulfil the father role effectively (Nolan, 2015; Ponzetti, 2016). The inclusion of fathers has been a priority in some PPN parenting programs only (Billingham, 2011;

Deslauriers et al., 2012; Hohmann-Marriott, 2009; Humphries & Nolan, 2015; National Nursing Research Unit, 2013; Plantin et al., 2011; Sahip & Turan, 2007), with others focussing on pregnant women only (e.g., Consonni et al., 2010; Panthuraamphorn, 1998; Robling et al., 2016). It has been perceived that facilitators of programs do not always know how to include fathers or meet their needs (e.g., Bäckström et al., 2017; Salzmann-Erikson & Eriksson, 2013). In some instances, prenatal and birth education professionals have not perceived their roles as being to include fathers, given it is mothers who carry, and birth, babies (Zanoni et al., 2013). Perceived best-practice for how fathers can be included in PPN parenting programs was examined in Study 3, using a panel of 29 expert parents (41.4% of which were fathers).

***Program delivery location.*** In the PPN parenting program context, location of where training is delivered is diverse. Examples include: (a) home visits (e.g., Edvardsson et al., 2011; Ferguson & Vanderpool, 2013; Glover & Sutton, 2012; Halford et al., 2010; Hussaini et al., 2011; Korfmacher et al., 1999; Landy et al., 2012; Robling et al., 2016); (b) the workplace, to encourage the attendance of fathers (Sahip & Turan, 2007); (c) community settings such as community halls, pubs, and sporting venues for men (e.g., Davis et al., 2016; Deslauriers et al., 2012; Dunneram & Jeewon, 2015; Edvardsson et al., 2011; Kiselica, 2008; Raikes et al., 2005); (d) commercial training rooms (Brixval et al., 2016; Gray & McCormick, 2005); and the hospital where birthing (Ayiasi et al., 2013; Brixval et al., 2016; Coley & Nicols, 2016; Halford & Petch, 2010; Hauck et al., 2016).

**Constraints that may obstruct the development of effective programs for adult learners.** Whilst the information discussed thus far on reported best-practice (where possible), for adult education in general, as well as for PPN parenting programs, constraints have been reported that may impede the inclusion of all ideal factors. According to Comings et al. (2003), important constraints to best-practice programs being developed include: (a)

budget; (b) design and development time available; (c) logistics, such as availability of ideal location and technical competency, including participants' and facilitators' ability to use online resources (Alalshaikh, 2015; Lotrecchiano et al., 2013); (d) ethical sensitivities (e.g., permission to share real birth videos, confidentiality being upheld with personal sharing within a group); (e) capability to benchmark a program to validate quality and effectiveness (Millar, 2003); (f) impracticality of offering in-person sessions for some participants in terms of travel time if location is not convenient (Lotrecchiano et al., 2013); (g) difficulty to negotiate agendas when incorporating a multidisciplinary facilitation team, in a way that all people are available at the same time (Lotrecchiano et al., 2013); and (h) parents conducting their own research on PPN parenting tips and strategies due to the vast quantities of information accessible online. One limitation of this final point may be parents not being able to verify that information found is credible, accurate, or ethically sound (Heath & Palm, 2006). This raises the question of how to access and educate expecting parents of benchmarks and search parameters that relate to quality and relevant PPN parenting material.

## Summary

It is evident that consensus of best practice across a wide array of factors relating to adult education in general, and in the PPN parenting program context, does not currently exist. Many constraints have influenced this outcome. One research approach used to reach agreement consensus when this not yet been achieved, is the Delphi methodology, and was the design used for Studies 3 and 4.

## Delphi Methodology

**Overview.** The Delphi methodology has traditionally been used to focus on specific issues where validated theory does not yet exist (Jenkins & Smith, 1994), for example, needs assessment and program planning (Hsu & Sandford, 2007). This methodology has been widely used in the fields of: (a) technological forecasting (Helmer, 1966); (b) public health

(Adler & Ziglio, 1996); (c) education, psychology, and political science (Eggers & Jones, 1998; Stone Fish & Busby, 1996); (d) cost-benefit analysis (Shefer & Stroumsa, 1982); (e) family therapy (e.g., Avis, 1986; Figley & Nelson, 1990; Stone Fish, 1987); (f) medicine (e.g., Hejblum et al., 2014); (g) nursing (Jones & Hunter, 1995; Laustsen & Brahe, 2015); and (h) curriculum development, design, and delivery features of educational programs and interventions (Desroches et al., 2015; Phillips et al., 2014; Stathakarou, Zary, & Konowicz, 2015; Warner, 2014). This field is in alignment with the current dissertation.

Delphi methodology utilises both a qualitative and quantitative research design to generate items for consensus rating, based on expert panellist members' opinions being shared, in response to specific research questions (James & Warren-Forward, 2015). There have been no clear parameters of sample size for Delphi studies reported in the literature, and expert panels have varied with studies utilising 10 (Hsu & Sandford, 2007), 15 (Fiander & Burns, 1998), 50 (Hsu & Sandford, 2007; Linstone & Turoff, 2002) and 60 (Alexander & Kroposki, 1999) individuals meeting predetermined inclusion criteria. It is generally recognised that the majority of Delphi methodology studies using a homogeneous sample have a sample size of between 10 and 30 experts (Delbecq, Van de Ven, & Gustafson, 1975; Keeney, Hasson, & McKenna, 2011; Ludwig, 1997; Okoli & Pawlowski, 2004).

Whilst no agreed upon definition of the term *expert* exists for Delphi methodology, Delbecq et al. (1975) originally stated that to be considered qualified to participate, individuals need to be representative of the group of people who will use the outcomes from the study being undertaken. Others have suggested that panellist contributions need to reflect current knowledge of the topic of interest (Hasson, Keeney, & McKenna, 2000; James & Warren-Forward, 2015). Jenkins and Smith (1994) argued that experts need to be able to resolve the research questions being posed. As a result, the sampling method used for Delphi methodology studies is nonprobability sampling, whereby selection is not random (Hasson et

al., 2000). It is common for panellists to be 'handpicked' (Hasson et al., 2000), or for the snowball technique to be employed, where prospective panellists are asked to refer others in their networks who meet the inclusion criteria (Adams & Schvaneveldt, 1991; Iqbal & Pipon-Young, 2009; Jenkins & Smith, 1994; Warner, 2014).

Once selected, a series of structured online questionnaires, across multiple rounds (typically three) are completed by the expert panellists. The aim is to achieve consensus amongst the panellists (Avis, 1986; Dawson, Rhodes & Touyz, 2015; Desroches et al., 2015; Iqbal & Pipon-Young, 2009; Jenkins & Smith, 1994; Powell, 2003; Shah & Kalaian, 2009). The number of rounds can vary between two (Beech, 1997; Hejblum et al., 2014; Stathakarou et al., 2015) and four (Geist, 2010; Young & Hogben, 1978; Zozus et al., 2015). Knowing when to stop is useful, to find the balance between attaining meaningful results whilst not fatiguing panellists (Schmidt, 1997).

As with panel size and definition of an expert, there has been no agreed-upon percentage in the literature for when consensus is reached. What is consistent is that a predetermined or *a priori* percentage of [dis]agreement be set prior to a study's commencement (James & Warren-Forward, 2015). Consensus percentages have been shown to vary from 51% agreement between panellists (Loughlin & Moore, 1979) to 100% (Williams & Webb, 1994). More common levels of agreement are 60% (Laustsen & Brahe, 2015), 70% (Hsu & Sandford, 2007; Meshkat et al., 2014; Sumsion, 1998); 75% (Dawson et al., 2015; Desroches et al., 2015; Fleuren, Wiefferink, & Paulussen, 2004; Hejblum et al., 2014; Keeney et al., 2006), and 80% (Falzarano & Pinto Zipp, 2013; Kingston et al., 2011; Ulschak, 1983; Ward, Stebbings, Sherman, Cherkin, & Baxter, 2014).

Prior to distributing the initial questionnaire to an expert panel, pilot testing is recommended to ensure that readability, time required to complete the questionnaire, and relevance of questions included are matched to what was intended by researchers (Desroches

et al., 2015; Hasson et al., 2000; Iqbal & Pipon-Young, 2009; Jenkins & Smith, 1994; Powell, 2003). Pilot testing was completed in Studies 3 and 4.

A round 1 questionnaire in a Delphi methodology study typically includes demographic questions along with a series of open-ended questions to garner original ideas and responses from the expert panellists (Hasson et al., 2000; Hsu & Sandford, 2007; Shah & Kalain, 2009). Ideas shared are thematically analysed, and items generated are then formulated into a round 2 questionnaire (Hasson et al., 2000). Panellists rate their level of [dis]agreement with each item, and the goal is for consensus to be attained across the panel (Hasson et al., 2000). Either a 5- or 7-point Likert rating scale is most often used (Desroches et al., 2015; Jenkins & Smith, 1994; Ward et al., 2014; Zozus et al., 2015). Items that do not reach consensus in round 2 are included round 3. In each round, panellists receive a summary of results from the previous round.

The most common forms of analysis completed and shared with panellists include measures of central tendency (Mean, Median) with variability (Standard Deviation, SD) (Dawson et al., 2015; Hasson et al., 2000; Hsu & Sandford, 2007; Jenkins & Smith, 1994; Keeney et al., 2011; Stone Fish, 1987), and consensus percentages (Hejblum et al., 2014; Phillips et al., 2014). The number of rounds continues until either consensus is attained (Hasson et al., 2000), or the level of diminished returns in responses warrants the time investment of a further round (Delbecq et al., 1975; Shah & Kalaian, 2009).

Of note, a hybrid variation to the Delphi methodology exists and includes literature-derived information for panellists to respond to, as well as open-ended questions that enable opinions and new ideas from panellists to be collected in round 1 (Duffield, 1993; Hasson et al., 2000; Iqbal & Pipon-Young, 2009; Jenkins & Smith, 1994; Tester, 1992). This is considered accepted practice when challenges such as respondent fatigue may be an issue (Hasson et al., 2000; Jenkins & Smith, 1994). In the case of Studies 3 and 4, a large number

of questions (19) were included for consensus rating, which may have led to more than three rounds being required to achieve consensus, resulting in possible high attrition. Therefore, literature-derived information was included in seven questions in round 1 (see the Method section in this chapter). Trade-offs of choosing this approach include that original contributions by panellists may be limited and consensus responses biased, if panellists feel compelled to agree with what has been identified in the literature (Hasson et al., 2000).

**Benefits of Delphi methodology.** There are many benefits of the Delphi methodology and eight commonly reported benefits are:

1. anonymity being upheld amongst expert panel members (e.g., Hsu & Sandford, 2007; Vazquez-Ramos, Leahy, & Hernandez, 2007). This may assist in achieving a high rate of authentic opinions (Laustsen & Brahe, 2015), and honest responses (Meyrick, 2003), whilst also mitigating social desirability driven responses (Jenkins & Smith, 1994).
2. consensus being achieved on a topic or research area where there has been uncertainty, conflicting opinions, or lack of empirical evidence (Delbecq et al., 1975).
3. consensus being achieved, whilst preventing individual panellists from dominating and influencing opinions and contributions of other experts involved in a study (Dawson & Brucker, 2001; Vazquez-Ramos et al., 2007).
4. geographically diverse groups of experts being able to participate in studies that require consensus-based solutions to answer research questions of interest (Jenkins & Smith, 1994; Stone Fish & Osborne, 1992; Vazquez-Ramos et al., 2007; Ziglio, 1996).
5. literature in the field of interest being advanced as a result of novel ideas from experts being identified and compared to existing literature (Iqbal & Pipon-Young, 2009).

6. the stimulation of new ideas occurring due to results being shared to panellists between rounds (Pill, 1971).
7. access to expert panellists being cost-effective due to the study design utilising online questionnaires as opposed to in-person interaction (Iqbal & Pipon-Young, 2009; Powell, 2003).
8. construct validity possibly being enhanced for the research topic of interest when clear research questions are utilised (Okoli & Pawlowski, 2004).

**Disadvantages of Delphi methodology.** Whilst the advantages to the Delphi methodology are compelling, this study design is not without disadvantages. Commonly reported disadvantages include:

1. the lack of an agreed definition of consensus (variation exists from 51% to 100%, Hsu & Sandford, 2007; Iqbal & Pipon-Young, 2009), which may impact the ability to compare results between studies completed in the same field or topic area (Hasson et al., 2000; Laustsen & Brahe, 2015).
2. the lack of agreed standards for expert panellist selection, which may lead to inconsistency in levels of expertise of panellists across studies (Iqbal & Pipon-Young, 2009).
3. generalisability of results is not guaranteed outside the expert panellist group (Iqbal & Pipon-Young, 2009; Stone Fish & Busby, 1996), due to the lack of random sampling (Williams & Webb, 1994).
4. reliability and validity of results can be challenged due to the non-random sampling of panellists (Sackman, 1975). There is no guarantee that if the same research questions were posed to more than one expert panel, that the results would be similar (Hasson et al., 2006).

Whilst it is evident that a range of benefits and limitations to the use of Delphi methodology exist, it has been consistently considered a superior method for attaining consensus within groups (e.g., Phillips et al., 2014; Vazquez-Ramos et al., 2007). It has also been a useful and effective research approach in the field of psychology (Iqbal & Pipon-Young, 2009; Stone Fish, & Busby, 1996). Additionally, as the study design incorporates both qualitative and quantitative measures, opportunities exist to capture wide perspectives of topics of interest being investigated (Iqbal & Pipon-Young, 2009), and knowledge gained can inform future possibilities in the field of interest (Shah & Kalaian, 2009). In the context of the current dissertation project, it was deemed that the benefits of the Delphi methodology outweighed the disadvantages.

**Summary**

The Delphi methodology has been used across a wide array of fields, with the intention being for consensus to be reached by a panel of experts, on a topic of interest where clarity has not been attained. Whilst there is no agreement in the literature on sample size, the definition of expert, consensus parameters, or number of rounds to be included in any given study, this research design is considered to be effective (e.g., Hasson et al., 2000; Okoli & Pawlowski, 2004; Phillips et al., 2014).

From the conception of a Delphi methodology study, it is important that researchers: (a) choose panellists that meet predefined inclusion criteria that are fit for purpose of the study aims (James & Warren-Forward, 2015); (b) include content from the current literature in addition to panellist opinions, so that consensus findings can be linked back to research to enhance credibility, and research thoroughness (James & Warren-Forward, 2015); (c) set a predetermined and consistent consensus percentage, that results will be analysed in accordance to (James & Warren-Forward, 2015); and (d) pilot test the round 1 questionnaire (Hasson et al., 2000; Iqbal & Pipon-Young, 2009; Powell, 2003).

Despite there being clear advantages and disadvantages to Delphi methodology as a research technique, it was considered an appropriate choice for studies 3 and 4 of the current dissertation, as the literature-to-date was inconclusive on best practice for PPN parenting programs for the 21st century.

**Study 3 Aims and Research Questions**

This three-round Delphi methodology study was exploratory in nature, and built on the findings from Studies 1 and 2, as well as the current PPN parenting program literature. Opinions, beliefs, and perceptions from a group of mothers and fathers (*n*=27), who met inclusion criteria as expert panel members, were sought. The aim was to understand what factors were perceived to be most effective when considering design, development, and delivery of PPN parenting programs for parents. It was intended that outcomes from the current study would contribute to the literature, as the research to-date presented mixed findings. Overall, there is a lack of clear consensus regarding a gold standard relating to: (a) factors that may influence a prenate during pregnancy that can be included in PPN parenting programs as useful information for parents to be aware of; (b) content that may be useful for parents that focusses on modern-day pregnancy, and parenting in the fourth trimester; and (c) target groups, delivery styles, facilitator expertise, program structure, and appropriate timing of sessions and programs overall.

In alignment with the intentions of Studies 1 and 2, one of the objectives of Study 3 was to ascertain if and how PPN parenting programs attended during at least one pregnancy was valued by the expert parent panellists. Further, as the literature largely indicated that existing programs not did not include the needs and involvement of expecting fathers to the same extent as expecting mothers (e.g., Deslauriers et al., 2012; Hollins Martin & Robb, 2013; Maldonado-Duran et al., 2000; Piotrowska et al., 2017), fathers' opinions were of importance in the current dissertation, and Study 3 specifically. Both qualitative and

quantitative research approaches were utilised throughout. This information was then compared and consolidated to the existing literature, the findings from Studies 1 and 2, and the expert opinions of birth professionals from Study 4 (refer to Chapters 5, 6, and 8 for findings). The intention was to inform the content focus, program structure, and timing recommendations presented for future PPN parenting programs (see Chapter 9).

Six literature-derived research questions shaped Study 3:

1. What factors may impact both the development of prenates during gestation and influence who babies become post birth, that expecting parents would benefit from learning about?
2. What content is most effective for inclusion in future PPN parenting programs?
3. What content is ineffective for inclusion in future PPN parenting programs?
4. What factors lead to maintained participant engagement and involvement in PPN parenting programs?
5. What factors may contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?
6. What logistical and program delivery-related factors are most effective when considering future PPN parenting programs? More specifically:
    a. Which groups of parents may benefit from having access?
    b. Who should attend the sessions?
    c. What stage of a pregnancy is most effective for PPN parenting programs to both start and end?
    d. How can information in PPN parenting programs most effectively be presented/delivered?
    e. What is the most effective location/platform for delivery?
    f. Who ought to deliver PPN parenting programs?

g. What is the most effective length of each session and time between each session?

h. What is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?

## Method

Ethical approval was given by BUHREC—Application ID 15839 (see Appendix D), and data was collected between November 2016 and February 2017.

### Expert Panellists and Recruitment

Criteria for inclusion in this study comprised being a mother or father who had one or more children, and who had attended and completed a PPN parenting program, facilitated by a licensed PPN specialist or professional (e.g., Lamaze, hospital training).

Opinions from geographically diverse parents were sought, and as with Studies 1 and 2, the goal was to attract as wide a global population as possible, with a balanced inclusion of mothers and fathers. The aim was to maximise generalisability of findings and recommendations collated.

Panellists were recruited via advertising the study on social media, specifically Facebook. A snowball technique was included where the advertisement (refer Appendix E) asked for the study invitation to be shared with people who may meet the expert parent criteria. As the inclusion of fathers was equally as important as including mothers, requests for referrals of fathers were made on Facebook. This was done to mitigate any assumption that the study was for mothers only. When potential participants responded to the advertisement on Facebook (either via email or to the student researcher's messenger in Facebook), or were referred via the snowball technique, an email was sent detailing the requirements for involvement, and inviting the person to be a part of the study if they met the required criteria (see Appendix F).

Forty-four people responded to the social media advertisement in total, and of those, two people identified as having been referred via the snowball technique. All were emailed the details of the study that included: the researchers' details; study aims; inclusion criteria; proposed dates and time commitments for each round of the study; details regarding ethics approval, confidentiality, ability to withdraw at any time; and acknowledgement that they would receive a fifty dollar online gift voucher (e.g., Amazon, Coles-Myer) as a token of thanks, upon successful completion of all three rounds of the study. This was funded by university faculty. Informing prospective panellists of all that is involved and expected of them is a commonly recognised step in the Delphi methodology (Hasson et al., 2000).

Of the 44 responders, 77.27% (*n*=34) voluntarily agreed, via email, to participate. They were sent a further email with the details of what was required for round 1, along with a link to the round 1 questionnaire on Qualtrics Research Suite (see Appendix F). Whilst panellists were ensured confidentiality, the study design was quasi-anonymous, where the identity of each panellist was known to the student researcher. This enabled contact for dissemination of results, and questionnaire links for each round. Identity details were not shared between panel members, ensuring anonymity was maintained between panel experts throughout the study. This is common practice with Delphi methodology (e.g., Iqbal & Pipon-Young, 2009; Laustsen & Brahe, 2015; Vazquez-Ramos et al., 2007).

## Materials

Three rounds of online questionnaires were created for the expert parent panellists to complete using the online survey program, Qualtrics Research Suite. See Appendices H, I, and J for the three questionnaires.

## Procedure

**Devising the round 1 questionnaire.** Nineteen questions were included in the round 1 questionnaire and were generated from two key sources. The first source was the results

that emerged from Studies 1 and 2 (for a full review of results see Chapters 5 and 6 and McKee et al., 2017, 2018). Specifically:

- regularity of talking to a prenate during the time of pregnancy;
- beliefs about how much prenates may be influenced by maternal thoughts, emotions, beliefs, and moods during the time of pregnancy;
- beliefs about whether prenates may be influenced by the quality of a mother's partner relationship during pregnancy;
- how the PPN parenting programs attended by panellists did not address needs related to support during the time of pregnancy;
- topics that would have been useful in PPN parenting programs attended,
- perceived importance of mothers and fathers being supportive of one another in their couple relationship during pregnancies,
- most effective timing to become involved in PPN parenting programs, and
- who ought to deliver PPN parenting programs.

Secondly, questions included in the Study 3 online questionnaire were also drawn from literature that focussed on 12 specific aspects relating to PPN parenting programs (previously discussed in Chapters 2 and 3):

1. factors that may specifically impact on both the development of prenates during gestation and influence who babies become post birth (Brownell et al., 2011; Cowan & Cowan, 1995; Dunneram & Jeewon, 2015; Gazmararian et al., 2014; Halford, 2004; Halford & Petch, 2010; Jackson, 1995; Pinquart & Teubert, 2010; Smart et al., 2015). This was included to inform topics that expecting parents may benefit from learning about throughout a pregnancy and beyond;
2. content that effectively targets what parents may need to know in general throughout pregnancies (Adamsons, 2013; Akinbami, Cheng, & Kornfeld, 2001; Alio, Lewis,

Scarborough, Harris, & Fiscella, 2013; Billingham, 2011; Cowan & Cowan, 1995; Deslauriers et al., 2012; Dunneram & Jeewon, 2015; Feinberg et al., 2015; Fletcher et al., 2006; Glied & Oellerich, 2014; Halford & Petch, 2010; Hohmann-Marriott, 2009; Landy et al., 2012; Neuhauser et al., 2007; Renzaho & Oldroyd, 2014; Sahip & Turan, 2007; Tohotoa et al., 2012);

3. stages during pregnancy that are most effective for parents to start and end PPN parenting programs (Dunneram & Jeewon, 2015; Godin et al., 2015; Jongen et al., 2014; Trillinsgaard et al., 2012);
4. effective locations for delivery of PPN parenting programs (Castillo et al., 2011; Ferguson & Vanderpool, 2013; Robbers, 2009; Sahip & Turan, 2007);
5. effective platforms for delivery of PPN parenting programs (Arcus, 1995; Ayiasi et al., 2013; Billingham, 2011; Cunningham et al., 2017; Gazmararian et al., 2014; Halford, 2004; Quirk et al., 2014);
6. effective methods for delivering information presented in PPN parenting programs (Alio et al., 2013; Dion, 2005; Ferguson & Vanderpool, 2013; Halford & Petch, 2010; Landy et al., 2012; Neuhauser et al., 2007);
7. who the most appropriate cohorts are to receive PPN parenting programs (Adamsons, 2013; Billingham, 2011; Davis et al., 2016; Hohmann-Marriott, 2009; Plantin et al., 2011; Raeisi et al., 2013; Renzaho & Oldroyd, 2014; Walsh et al., 2014);
8. factors that may lead to fathers being less involved or included in PPN parenting programs than mothers (Bäckström & Hertfelt Wahn, 2011; Bäckström et al., 2017; Hohmann-Marriott, 2009; Salzmann-Erikson & Eriksson, 2013; Sheriff & Hall, 2011; Shribman & Billingham, 2008; Zanoni et al., 2013);
9. most effective length of each session in PPN parenting programs (Baytop, 2006; Cowan & Cowan, 1995; Feinberg et al., 2015; Jaddoe, 2009; Koushede et al., 2017);

10. most effective amount of time between sessions, as well as overall length of PPN parenting programs (Halford & Petch, 2010; Jackson, 1995; Petch et al., 2012);
11. most appropriate persons to deliver PPN parenting programs (Bäckström et al., 2017; Deslauriers et al., 2012; Nolan, 2017; Pinquart & Teubert, 2010; Titaley et al., 2010; Tohotoa et al., 2012); and
12. most effective ways to maintain participants' engagement and involvement in each session of PPN parenting programs (Artieta-Pinedo, Paz-Pascual, Grandes, & Espinosa, 2017; Ayiasi et al., 2013; Landy et al., 2012).

Whilst individual rounds are discussed in detail in the dedicated sections below, the procedural aspects that related to all three rounds is first provided to set an overall context.

**Procedural overview.** The parent panellists were asked to complete each round of the questionnaire over a 14 to 21 day period. Questionnaires in rounds 1 and 2 took between 30-40 minutes to complete, with round 3 taking approximately 15 minutes. Each could be completed over multiple sessions; however, it was encouraged to be done in one session for flow and memory retention of responses to earlier questions. Reminder emails were sent to non-completers one week and one day (when needed), prior to the completion deadlines. For rounds 2 and 3, the requested submission date was extended by one week to maximise responses and minimise attrition.

Upon completion of each round, individual panellists received a thank-you email. Research showed that this action can positively influence response rates in subsequent rounds (Iqbal & Pipon-Young, 2009). Only panellists who completed a survey round were included in the following round. There was a two to three week interval between rounds. This enabled data analysis, write-up of results for reporting back to panellists, and development of the subsequent round online questionnaire.

***Consensus criteria used across the three rounds.*** Standardised criteria for when consensus is considered reached in Delphi methodology studies does not exist, with previous researchers reporting levels ranging between 51% and 100% (e.g., Holey, Feeley, Dixon, & Whittaker, 2007; Keeney et al., 2006; Williams & Webb, 1994). As a result, an *a priori* criterion (James & Warren-Forward, 2015) was followed in studies 3 and 4. Specifically, in instances where either *strongly agree* or *agree* on the 5-point Likert scale used were selected by 75% or more of panellists (Dawson et al., 2015; Desroches et al., 2015; Hejblum et al., 2014), consensus was considered reached. The related items were then included as recommendations for future PPN parenting programs. Similarly, where either *strongly disagree* or *disagree* were chosen by 75% or more of panellists (Dawson et al., 2015; Desroches et al., 2015; Hejblum et al., 2014), consensus was considered to be attained for the non-inclusion of items in further rounds of the study, as well as in future PPN parenting programs. All items that did not meet the consensus criteria in a round were automatically included in the subsequent round for re-rating.

***Analysis procedure used across the three rounds.*** Analysis of the data occurred at the end of each of the three rounds, and results generated informed the inclusion of items for each subsequent round. The verbatim information collated from round 1 was analysed using Braun and Clarke's (2006) five step thematic analysis approach that was followed in Studies 2 and 3 (refer to pp. 101-101 in Chapter 5 for a review of the thematic analysis process). This methodological tool is recommended when qualitative content analysis is undertaken in Delphi methodology studies (Iqbal & Pipon-Young, 2009).

Care was taken to create items for each question that incorporated the verbatim words and phrases used by panellists (Hasson et al., 2000; Jenkins & Smith, 1994), to ensure the integrity of responses was upheld. Qualitative data generated by the panellists were presented back to them in the form of 'items to rate' for each question. This process was followed for

rounds 2 and 3. The quantitative data generated via 5-point Likert scales in all three rounds were analysed using IBM SPSS Statistics 24. Analysis of the Likert items involved calculation of central tendency (Mean, Median), a measure of variability (SD) and percentage rating of each item by panellists as a collective group. The percentage values determined whether or not consensus was considered reached on each item (Boulkedid, Abdoul, Loustau, Sibony, & Alberti, 2011).

A visual representation of the Delphi methodology can be seen in Figure 1. A more detailed discussed of the procedure for each individual round is outlined next.

***Round 1.*** The round 1 questionnaire was pilot-tested (Hasson et al., 2000; Iqbal & Pipon-Young, 2009; Jenkins & Smith, 1994). Using a sample of four people who met the inclusion criteria as experts for the study, as well as three lay people, the purpose of pilot testing was to determine: (a) ease of use, (b) grammatical correctness, (c) accurate comprehension of terms and language used within the questionnaire, (d) if the length was appropriate for maintaining engagement, and (e) accuracy of timing specified to complete the questionnaire. Minor wording and grammatical changes were made based on feedback received (e.g., using correct tense and ensuring consistency in sentence structure of questions).

Informed consent was obtained within the online questionnaire, whereby each panellist was required to type ‘yes’ to consenting after reading the explanatory statement and prior to being granted access to the questions in the questionnaire. The explanatory statement included information about the student researcher and supervisor, the aims of the study, the confidential and quasi-anonymous nature of participation, approximate time to complete the questionnaire, and details of support services (refer to Appendix G).

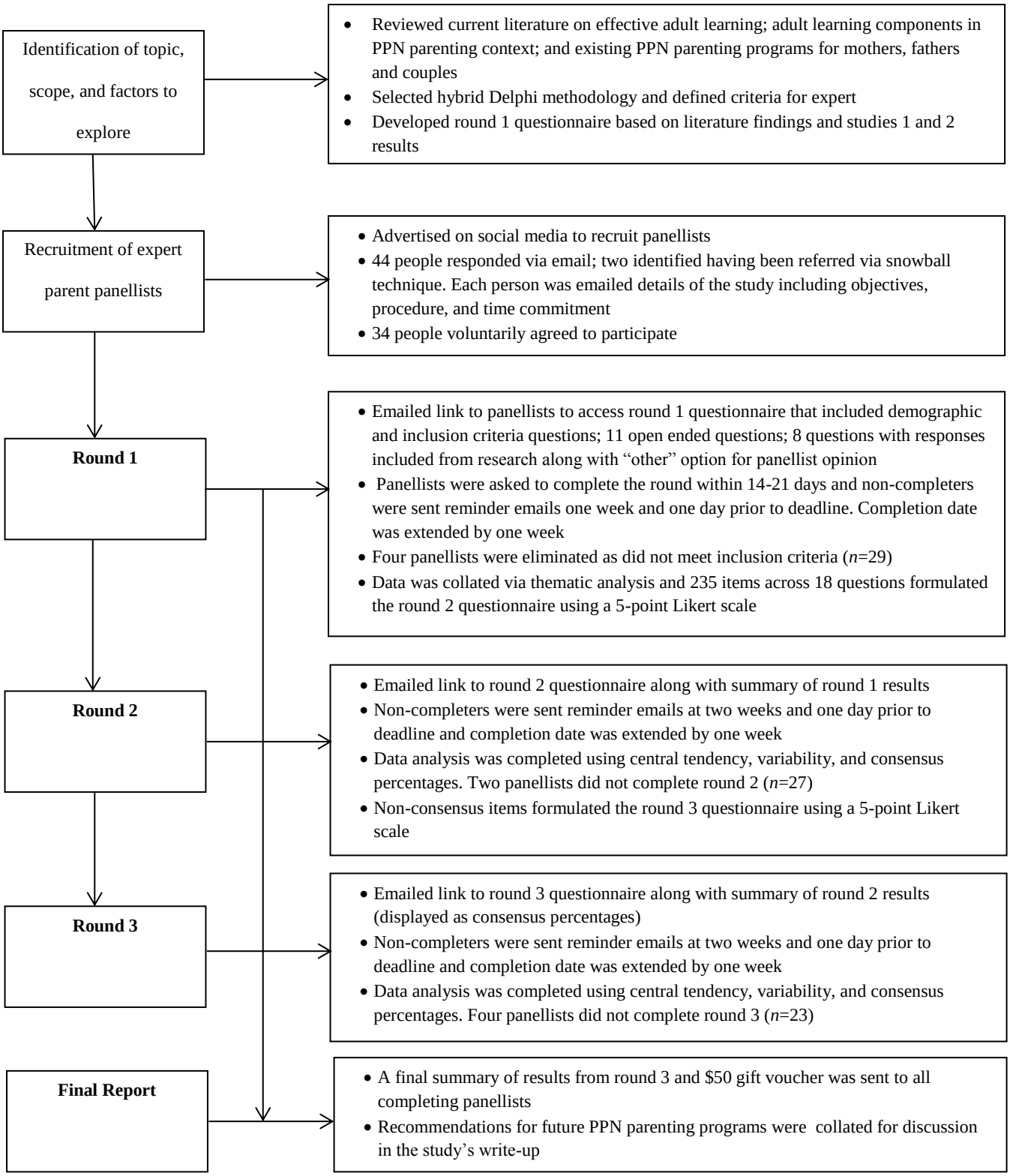


*Figure 1*. Visual representation of Delphi methodology for Study 3

Demographic information was collected and included age, gender, nationality, country of residence, marital status, number of children, and education level. Inclusion criteria questions were also asked: (a) "Please indicate the type of the prenatal course or

classes you attended that was facilitated by a birth professional"; (b) "Please indicate which year you attended the prenatal course or classes"; (c) "Over what period of time did the course/classes run? (in weeks, months)"; (d) "At what stage in the pregnancy did you begin the course/classes?; (e) "How many sessions did it involve?"; (f) "Did both you and your partner attend?"; (g) "Where was the course/classes held?"; and (h) "What type of birth professional facilitated the course/classes?"

As stated earlier, due to the large number of questions being asked, a hybrid version of the Delphi methodology (e.g., Hasson et al., 2000; Jenkins & Smith, 1994) for the round 1 questionnaire was used in the current study. This was where both content from literature as well as open-ended question options for panellists to provide their opinions on, were provided within two questions. The research argued that this technique may bias panellist responses in the direction of what the literature identifies (Hasson et al., 2000). However, this concern was mitigated, where possible, by providing panellists with the open-ended version of the question first. Once completed, a second question (that panellists were blind to seeing when completing the open-ended version) was asked and the content from the literature was presented for consideration. This measure was undertaken for two questions in the study:

1. "What factors do you believe may impact both the development of prenates during gestation and influence who babies become post birth?"
2. "What content do you think is most effective regarding your needs as a parent when considering pre- and perinatal parenting programs?"

Panellists then responded to 19 questions (see Appendix G) that comprised: (a) one 5-point Likert rating question devised from Study 1's results "When considering factors that may impact both the development of prenates during gestation and influence who babies become post birth, for each of the following, please indicate your level of agreement"; (b) 11 open-ended questions; and (c) seven questions that had a combination of "checkbox" options

as well as an "other" option with a comment box. This enabled verbatim feedback to be captured, as well as providing the opportunity for panellists to share their opinion of what current research stated, by either checking an item or not, and adding new ideas. No items were eliminated between round 1 and round 2 if they were not checked; rather, they were converted into a 5-point Likert scale for determining level of [dis]agreement in rounds 2 and 3.

Each of the 19 questions generated items that were included for qualitative rating in rounds 2 and 3, and panellists were provided the option to add any general comments about the study.

***Round 2.*** The purpose of round 2 was to begin attaining group consensus on items generated per question, as a result of thematic analysis of the qualitative data shared by panellists in round 1. The round 2 questionnaire had three parts (see Appendix H). The first part provided a summary of results from the one question in round 1 that asked panellists to rate their level of [dis]agreement, using a 5-point Likert scale. The question was "What factors do you perceive may impact both the development of prenates during gestation and influence who babies become post birth?" The summary related to the 16 items generated from Study 1's results.

From an academic perspective, best-practice of sharing results to panellists is to include measures of central tendency, variability (e.g., Dawson et al., 2015; Hasson et al., 2000; Hsu & Sandford, 2007; Keeney et al., 2011) and consensus percentages (e.g., Hejblum et al., 2014; Phillips et al., 2014). However, as the panellists were lay persons, only consensus percentages were reported when feeding back results from each round. This was done to facilitate ease of understanding the results.

The second part of the questionnaire required panellists to quantitatively rate items that were generated from thematic analysis results of the verbatim responses to each of the 19

questions included in round 1. In accordance with methodological best-practice for content analysis studies, the wording used by the panellists was maintained, with minor changes being made to tense and grammar (Hasson et al., 2000; Jenkins & Smith, 1994).

The third part of the questionnaire provided the opportunity for panellists to suggest new ideas for inclusion in round 3. Panellists were asked: "If you have any additional comments regarding round 2, or if there are other questions related to the topic that you believe are important to present to the panel, please list these below so they can be added to round 3 considerations".

***Round 3.*** The round 3 questionnaire was presented differently to the format in round 2. Each question was organised into two parts. The first part consisted of a summary table of results and included each item and whether it attained consensus or not in round 2 (presented as percentages). In the second part, items that did not attain consensus were presented to panellists to re-rate (see Appendix I).

Upon completion of the third and final round, results were analysed and a summary of outcomes were made available for viewing by all panellists on Qualtrics Research Suite. Each panellist who completed rounds 1 to 3 was emailed a fifty dollar gift voucher as a token of thanks. Panellists who resided in USA received an Amazon voucher, and those who lived in Australia were sent a Coles/Myer voucher.

## Results

A total of 34 expert parent panellists voluntarily agreed to participate in round 1 of Study 3. Criteria for inclusion as an expert parent included being a mother or father who had one or more children, and who had attended and completed a PPN parenting program that was facilitated by a licensed/certified PPN professional (e.g., Lamaze, hospital training). Whilst 34 mothers and fathers completed round 1, four were eliminated from data analysis, and from the remainder of the study, as they did not meet the inclusion criteria (determined

by responses to the inclusion criteria questions). One further panellist was removed from the study, as they had only completed 59% of the questionnaire. The eliminated panellists were notified via email. Data analysis in round 1 was based on a group of 29 expert parents.

The panel comprised 17 females (58.6%) and 12 males (41.4%), aged between 33 and 57 years (M=41.83; SD=6.85), from across two countries (Australia=86.2%; USA=13.8%). Of note, one of the males initially identified as living in United Arab Emirates, however, was a native to Australia, and returned to Australia after round 1. As a result, the data was coded as "Australia" for country. Of the types of PPN classes/courses attended during a pregnancy, the majority of panellists attended either hospital-mandated prenatal classes (27.27%), or classes that were specifically related to preparation for delivery (12.12%). Trimester two was the most common period during the pregnancy that panellists attended classes (56.25%). Whilst number of sessions involved ranged from one to 12, the most common number of sessions attended was six (20.59%). Both the panellist and their partner attended sessions in 87.10% of cases, and that the hospital where the baby was birthed was the most prevalent location where classes were held (58.06%). A midwife was identified as the facilitator of classes in 58.82% of cases. The demographics of the panellists are reported in Table 3.

Table 3

*Demographics of Expert Parent Panellists (Study 3)*

| Variable | N | % | M (years) | SD (years) | Range (years) |
|---|---|---|---|---|---|
| Age | 29 | | 41.83 | 6.85 | 33-57 |
| Gender | 29 | | | | |
| Female | 17 | 58.6 | | | |
| Male | 12 | 41.4 | | | |
| Country live in | 29 | | | | |
| USA | 4 | 13.8 | | | |
| Australia | 25 | 86.2 | | | |
| Marital status | 29 | | | | |
| Living with partner | 4 | 13.8 | | | |

| | | | |
|---|---|---|---|
| Married | 21 | 72.4 | |
| Divorced | 3 | 10.3 | |
| Separated | 1 | 3.40 | |
| | | | |
| Education level | 29 | | |
| High school | 1 | 3.40 | |
| Tech/vocational college | 6 | 20.7 | |
| Diploma | 3 | 10.3 | |
| Bachelor's degree | 12 | 41.4 | |
| Master's degree | 7 | 24.1 | |
| | | | |
| Number of children | 29 | | |
| 1 | 12 | 41.4 | |
| 2 | 13 | 44.8 | |
| 3 | 2 | 6.90 | |
| 4+ | 2 | 6.90 | |
| | | | |
| **Type of prenatal class attended | 33 | | |
| Homebirth prep | 2 | 6.06 | |
| Preparation for delivery | 4 | 12.12 | |
| Hospital mandated prenatal | 9 | 27.27 | |
| Hypnobirthing | 1 | 3.03 | |
| Yoga baby | 1 | 3.03 | |
| Breastfeeding | 2 | 6.06 | |
| Breathing | 2 | 6.06 | |
| Natural birth | 1 | 3.03 | |
| Prenatal (non-mandated) | 10 | 30.30 | |
| Unsure | 1 | 3.03 | |
| | | | |
| **Year attended classes | 35 | | 1986-2016 |
| 1986-1989 | 1 | 2.85 | |
| 1990-1994 | 1 | 2.85 | |
| 1995-1999 | 2 | 5.71 | |
| 2000-2004 | 6 | 17.14 | |
| 2005-2009 | 10 | 28.57 | |
| 2010-2014 | 10 | 28.57 | |
| 2015-2016 | 5 | 14.29 | |
| | | | |
| **Time period class was run | 36 | | |
| One session (2hrs) | 4 | 11.11 | |
| One session (half day) | 2 | 5.56 | |
| One session (full day) | 1 | 2.78 | |
| Two sessions (consecutive days) | 2 | 5.56 | |
| Two weeks | 1 | 2.78 | |
| Three weeks | 1 | 2.78 | |
| Four weeks | 6 | 16.67 | |
| Five weeks | 2 | 2.78 | |
| Six weeks | 8 | 22.22 | |
| Eight weeks | 2 | 5.56 | |
| 12 weeks | 5 | 13.89 | |

| | | |
|---|---|---|
| Informal timeline | 2 | 2.78 |
| | | |
| **Stage of pregnancy started | 32 | |
| classes | 2 | 6.25 |
| Trimester one | 18 | 56.25 |
| Trimester two | 11 | 34.38 |
| Trimester three | 1 | 3.13 |
| Unsure | | |
| | | |
| **Number of sessions | 34 | |
| 1 | 3 | 8.82 |
| 2 | 1 | 2.94 |
| 3 | 2 | 5.88 |
| 4 | 5 | 14.71 |
| 5 | 5 | 14.71 |
| 6 | 7 | 20.59 |
| 8 | 2 | 5.88 |
| 12 | 2 | 5.88 |
| Full day | 1 | 2.94 |
| Two full days | 1 | 2.94 |
| Informal (as needed support) | 2 | 5.88 |
| Unsure | 3 | 8.82 |
| | | |
| **Both parents attended classes | 31 | |
| Yes to all classes | 27 | 87.10 |
| Yes to two classes | 2 | 6.45 |
| No | 2 | 6.45 |
| | | |
| **Location of course | 31 | |
| Home | 4 | 12.90 |
| Hospital where birthed | 18 | 58.06 |
| Community hall | 3 | 9.68 |
| Yoga baby studio | 1 | 3.23 |
| Facilitator's premises | 4 | 12.90 |
| Unsure | 1 | 3.23 |
| | | |
| **Facilitator | 34 | |
| Midwife | 20 | 58.82 |
| Doula | 2 | 5.88 |
| Nurse | 4 | 8.82 |
| Paediatrician | 1 | 2.94 |
| Trained hypnobirthing facilitator | 1 | 2.94 |
| Childbirth educator & yoga | 3 | 8.82 |
| Lactation consultant | 2 | 5.88 |
| Infant first aid instructor | 1 | 2.94 |
| Unsure | 1 | 2.94 |

** panellists were given the option to identify data for >1 pregnancy if applicable.

**Qualitative Analysis**

**Round 1.** Of the 19 questions included in the round 1 questionnaire, 18 were thematically analysed to enable items to be generated for panellists to rate in round 2. The one Likert-scale question included in round 1 was quantitatively analysed using central tendency, variability, and percentages. The individual questions from round 1 are discussed separately below, and the items generated for presentation in the round 2 questionnaire can be seen in Appendix H.

***What factors do you believe may impact both the development of prenates during gestation and influence who babies become post birth?*** This question was presented in two ways to the panellists in round 1. Firstly as an open-ended question, and secondly, as a 5-point Likert scale question, that included 16 items identified from the literature and Studies 1 and 2. The question was presented in open-ended format first to maximise the quality and quantity of original thought and opinion from panellists, without being influenced by pre-existing items. Panellists were unable to see the 5-point Likert scale question until the open-ended question had been completed. In the thematic analysis of the open-ended question responses, only content categories that were different to what was already included in the Likert scale were included as new items for round 2.

The open-ended question generated 11 new items for presentation in the round 2 questionnaire. Examples included: "sounds", "social support available to the mother", "mother's level of self-confidence to parent", and "ancestral story".

***What content do you think is most effective regarding your needs as a parent when considering PPN parenting programs?*** This question was drawn from the literature and was presented in two ways to the panellists in round 1. First, it was presented as an open-ended question and second with checkbox items, along with an "other" option and comment box. Panellists were required to complete the open-ended question prior to being able to see the

version with content drawn from the literature, to maximise the number of original ideas being generated by panellists. Of the 25 items included from the literature, all were checked by at least 13 panellists. The open-ended question and "other" comment box generated 25 new items for presentation in the round 2 questionnaire. Examples included: "stress management skills", "local support services", "positive strategies to manage emotional triggers and reactions during pregnancy and post birth", and "tips on how to be a 'good enough' parent for the first six months post birth".

***What content do you think is ineffective regarding your needs as a parent when considering PPN parenting programs?*** This question was presented in open-ended response format only, as the student researcher was interested in learning the expert parents' perceptions of content that was not useful in PPN parenting programs they had attended, to better inform future recommendations. Thirteen items were generated and examples included: "promoting the scheduling of caesarean sections for birth", "birth videos of painful labours", "content that is not contextualised for the father too", and "any content that is not delivered in a way that promotes choice".

***What stage of a pregnancy do you believe is the most effective time for PPN parenting programs to start?*** As no clear consensus was available in the existing literature on the most effective time to start PPN parenting programs, this question was presented in open-ended format only. Seven items were identified by panellists. Examples included: "preconception", "trimester one", "trimester two", and "after the first ultrasound".

***What stage of a pregnancy do you believe is the most effective time for PPN parenting programs to end?*** This question was presented with four content options drawn from current literature (before birth, within three months post birth, within three to six months post birth, within six to 12 months post birth). An "other" category with an accompanying comment box was also included. All predetermined items were checked by at

least three panellists, and one additional item was generated; it was “ongoing on an as needs basis”.

***What do you believe is the most effective location/platform for delivery of PPN parenting programs?*** The literature revealed 11 common delivery platforms for PPN parenting programs. Each was presented as checkbox items, along with an “other” category that enabled panellists to write comments. Examples included: “in-person group sessions in a hospital setting”, “in-person couple sessions in a training room environment”, “self-guided learning from home”, and “sessions delivered via phone, Skype, Zoom”. All predetermined items were checked by at least three panellists. Four additional items were generated from the “other” category and included: “small group sessions in home environment”, “father-only group sessions held monthly during pregnancy and post birth”, “any location that has easy access parking and refreshments provided”, and “sessions for fathers held in a birthing room, with all of the equipment there so it becomes real”.

***How do you believe information in PPN parenting programs can most effectively be presented/delivered?*** Nine literature-derived items were presented and all were checked by at least three panellists (e.g., “lecture style”, “use of video”, “individualised program where couples can select modules that apply to their unique circumstances”, and “multimedia environment”). The inclusion of an “other” category captured four new ideas for inclusion in round 2. They were: “incorporate ‘mingle-time’ with refreshments where couples can get to know each other as part of the program”, “up-to-date resources available online”, “incorporate question and discussion time to discuss partnership and family (not just mum and baby focus)”, and “facilitator to ask for feedback and incorporate changes based on it”.

***Who do you believe should attend PPN parenting programs?”*** Literature discussed in Chapter 2 revealed that PPN parenting programs typically target either mothers-only, couples, and in fewer instances fathers-only. Based on this, five items were presented in

round 1 (“mum only”, “dad only”, “both mum and dad/partner”, “both mum and dad/partner with some sessions for dad/partner only”, and “both mum and dad/partner with some sessions for mum only”. Interestingly, the “mum only” and “dad only” items were not checked by any panellists in round 1. In order to be able to calculate consensus, the items were presented in round 2 for rating using a 5-point Likert scale. As with other questions, an “other” option was provided and three new items were generated. They were: “siblings”, “grandparents”, and “support people (other than parents)”.

***Research shows that fathers/partners attend less pregnancy and parenting related sessions/programs than expecting mothers. In your opinion, what factors would contribute to that being true?*** Whilst research suggested that fathers attend fewer sessions in PPN parenting programs than mothers do (e.g., Bäckström & Hertfelt Wahn, 2011; Bäckström et al., 2017; Carlson et al., 2014; Castillo et al., 2011; Zvara et al., 2013), no clearly defined statistics of the differences have been reported. As a result, this question was presented to panellists in open-ended format only. Forty-five responses were provided across the 29 panellists. As an outcome of thematic analysis, 17 unique items were collated and presented in round 2. Examples included: “work schedule”, “focus of the programs on delivery of baby”, “societal and cultural biases/stereotypes that pregnancy and parenting is a woman’s role”, “general lack of understanding of the importance of the role of the father in child care”.

***Which groups of parents do you believe may benefit from having access to PPN parenting programs?*** Six common categories of parents were presented as checkbox items (“first-time parents”, “existing parents who are pregnant again”, “pregnant teens”, “single parents”, “disadvantaged populations—e.g., low socio-economic status; ethnic minority; rural/remote; indigenous; those with drug/alcohol/domestic violence challenges”, “same-sex couples”). All items were checked by at least 19 respondents. An “other” option was provided to capture new ideas and three were revealed. They were: “any expecting parent

who wants to attend", "parents wanting to have a home birth", and "mothers wanting to have a vaginal birth after a previous caesarean section".

For the following three questions, there were no definitive recommendations provided in existing literature. As such, no predefined content categories were formulated. Instead, open-ended question format only was used to capture expert parent panellists' opinions and preferences.

***What do you believe is the most effective length of each session in PPN parenting programs?*** Twenty-eight verbatim responses were provided by panellists, and seven consistent categories were identified through the thematic analysis process. They included: "40-45 minutes", "one hour", "1.5 hours", "two hours", "half day", "full day", and "no set-time—person specific".

***In your opinion, what is the most effective amount of time between each session?*** Twenty-six panellist responses were recorded and of them, seven items were generated. They were: "between 3-6 days", "one week", "two weeks", "three weeks", "one month", "five weeks", and "three months".

***What do you believe is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?*** Of the 28 verbatim responses collected, 15 unique items were evident as an outcome of thematic analysis. Examples included: "from conception until post birth", "from trimester one until birth", "no set time—needs-based of the parents; "three months" and "six weeks".

***In your opinion who ought to deliver PPN parenting programs?*** Nine categories of birthing professionals were collated from the literature (e.g., midwife, doula, OB/GYN, childbirth educator, nurse) and were included as checkbox items. Each category was checked by at least two panellists in round 1. An "other" option was provided, and five new items emerged from six responses. Examples included: "anyone who is qualified and engaging,

approachable, and knowledgeable", "anyone who understands the father role in pregnancy and who can deliver material in a non-condescending way", "collaboration between a range of qualified pregnancy and birth specialists" and "male midwives/nurses to deliver father-only sessions".

***What are the best ways PPN parenting programs and/or facilitators of programs could maintain your level of engagement and involvement once a program has started?*** This question was open-ended format and of the 50 verbatim responses, thematic analysis revealed 28 individual items for sharing in round 2. Examples included: "share 'real life' stories", "make it fun, interesting, and entertaining", "have content delivered without judgement", and "start each session with a debrief of between session experiences".

***What other considerations (if any) do you believe are important for PPN parenting programs to be effective?*** Whilst 17 comments were shared by panellists, the information did not cultivate any new content items.

**Quantitative Analysis**

**Round 1.** The 5-point Likert scale data was analysed using IBM SPSS Statistics 24 and involved calculations of central tendency (Median) (e.g., Ward et al., 2014), variability (SD) and percentage values of consensus level for each item presented to expert parent panellists.

Panellists were asked to rate their level of agreement on 16 items that related to the following statement: "Factors that may impact both the development of prenates during gestation and influence who babies become post birth". *A priori* consensus of 75% of panellists who rated an item as either *strongly agree* or *agree* was reached for 14 of the 16 items, and have been included as recommendations for inclusion in future PPN parenting programs. The two items that did not reach consensus were included in the round 2 questionnaire for re-rating. Results are presented in Table 4.

Table 4

*Round 1 Items Relating to "Factors That May Impact Both the Development of Prenates during Gestation and Influence Who Babies Become Post Birth" (Study 3; n=29)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Maternal diet ** | 1.28 | 1.00 | 0.45 | 100* |
| Nutritional supplements ** | 1.72 | 2.00 | 0.75 | 82.8* |
| Substances (e.g., alcohol, nicotine, pesticides) ** | 1.38 | 1.00 | 1.15 | 93.1* |
| DNA ** | 1.52 | 1.00 | 0.69 | 89.7* |
| Mother-prenate relationship in the womb (e.g., degree of being wanted, interaction between mum and prenate throughout the pregnancy) ** | 1.24 | 1.00 | 0.58 | 93.1* |
| Father-prenate relationship in the womb (e.g., degree of being wanted, interaction between dad and prenate throughout the pregnancy) ** | 1.66 | 1.00 | 0.86 | 82.8* |
| Life stress experienced by mum and dad at time of conception and during the pregnancy ** | 1.28 | 1.00 | 0.45 | 100* |
| Level of physical activity for general health of mum during the pregnancy ** | 1.72 | 2.00 | 0.59 | 93.1* |
| Maternal and paternal family history of health issues and diseases ** | 1.90 | 2.00 | 0.86 | 69.0 |
| Age of mother ** | 2.28 | 2.00 | 0.84 | 62.1 |
| Maternal stress, anxiety and/or depression ** | 1.21 | 1.00 | 0.41 | 100* |
| Paternal stress, anxiety and/or depression ** | 1.69 | 2.00 | 0.71 | 86.2* |
| Mother's and father's perceptions (thoughts, attitudes, | | | | |

| | | | | |
|---|---|---|---|---|
| feelings, beliefs; both positive or negative) of each other, events, and environment experienced during pregnancy ** | 1.52 | 1.00 | 0.57 | 96.6* |
| Quality of relationship between the mother and father at time of conception and during the pregnancy ** | 1.59 | 1.00 | 0.83 | 86.2* |
| Maternal abuse (mental, physical, emotional) ** | 1.28 | 1.00 | 0.53 | 96.6* |
| General health of mother at time of conception and during the pregnancy (e.g., weight, blood pressure) ** | 1.69 | 2.00 | 0.71 | 86.2* |

* Consensus was reached
** Item originated from the literature

**Quantitative Analysis**

**Round 2.** Of the 29 panellists from round 1, 93.1% completed round 2 (*n*=27), indicating a low attrition rate of 6.9% (<30% is considered acceptable; Sumsion, 1998). The round 2 panel comprised 12 males (44.4%) and 15 females (55.6%). Each of the 18 questions, where 235 items in total were generated in round 1, was presented to panellists in round 2 (refer to Appendix H for the round 2 questionnaire). Panellists were required to rate their level of [dis]agreement with each item using a 5-point Likert scale (1=*strongly agree*, 2=*agree*, 3=*neutral*, 4=*disagree*, 5=*strongly disagree*). Central tendency, variability, and percentage delineating consensus (or not) are displayed by question, in Tables 5 to 19. A brief synopsis of results is outlined by question, below.

***What factors do you believe may impact both the development of prenates during gestation and influence who babies become post birth?*** Of the 13 items presented, consensus was reached on nine (69.23%). The four items where consensus was not reached were included in round 3 for re-rating.

Table 5

*Round 2 Items Relating to "Factors That May Impact Both the Development of Prenates during Gestation and Influence Who Babies Become Post Birth" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Age of mother ** | 2.36 | 2.00 | 0.91 | 70.4 |
| Sounds (e.g., voices, laughter, singing, talking directly to the prenate, raised voices) | 1.68 | 2.00 | 0.82 | 96.3* |
| Social support available to the mother (e.g., partner, family, friends etc.) | 1.75 | 1.50 | 0.97 | 81.5* |
| Mother being empowered through the pregnancy and birth (e.g., by partner, self, birth professionals) | 1.86 | 2.00 | 0.93 | 81.5* |
| Mother's and father's perception of if they will be a 'good enough' parent | 2.04 | 2.00 | 0.92 | 77.8* |
| Reincarnation/past lives baby brings who s/he is into this lifetime | 3.00 | 3.00 | 1.12 | 33.3 |
| Mother's level of self-confidence to parent | 1.82 | 2.00 | 0.82 | 81.5* |
| Mother's unprocessed emotions relating to any previous pregnancy losses (e.g., miscarriage, abortion, twin loss, still born) | 1.61 | 1.50 | 0.69 | 88.9* |
| Father's unprocessed emotions relating to any previous pregnancy losses (e.g., miscarriage, abortion, twin loss, still born) | 2.14 | 2.00 | 0.80 | 63.0 |
| Preconception stress, support, emotions and/or use of substances | 1.39 | 1.00 | 0.88 | 92.6* |

| | | | | |
|---|---|---|---|---|
| Ancestral story (e.g., quality of parental relationships in past generations) | 2.32 | 2.00 | 0.72 | 59.3 |
| Parental leave options and conditions (impacting thoughts on level of 'hands on' time a parent will be practically available for baby post birth) | 1.82 | 2.00 | 0.86 | 77.8* |
| Maternal and paternal family history of health issues and diseases ** | 1.82 | 2.00 | 0.82 | 81.5* |

* Consensus was reached
** Item originated from the literature

***What content do you think is most effective regarding your needs as a parent when considering PPN parenting programs?*** Fifty items were included for rating and consensus was attained on 38 of them (76%). The 12 remaining items were forwarded to round 3.

Table 6

*Round 2 Items Relating to "Content Perceived to be Most Effective Regarding Your Needs as a Parent When Considering PPN Parenting Programs" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Healthy and adaptive coping skills for the changes parenthood brings ** | 1.46 | 1.00 | 0.84 | 96.3* |
| Education on natural and drug free births ** | 2.00 | 2.00 | 0.98 | 77.8* |
| How to ask for the birth you want in a hospital setting ** | 1.86 | 2.00 | 0.89 | 81.5* |
| How to soothe baby ** | 1.46 | 1.00 | 0.88 | 92.6* |
| Sleep training ** | 2.04 | 2.00 | 1.20 | 70.4 |
| General bonding and attachment skills ** | 1.68 | 2.00 | 0.86 | 92.6* |
| Ways the father can bond with baby during pregnancy and post birth ** | 1.68 | 2.00 | 0.86 | 92.6* |

| | | | | |
|---|---|---|---|---|
| Skills for couple connection, communication, and working together ** | 1.64 | 1.00 | 0.95 | 85.2* |
| Social support training and how to ask for support ** | 1.86 | 2.00 | 1.04 | 77.8* |
| Education on developmental milestones in the womb ** | 2.14 | 2.00 | 1.11 | 74.1 |
| Ways a baby's growth and persona is influenced during pregnancy ** | 1.82 | 2.00 | 0.91 | 81.5* |
| Birthing options ** | 1.64 | 2.00 | 0.73 | 92.6* |
| Pregnancy health ** | 1.61 | 1.00 | 0.86 | 96.3* |
| Preparation for labour and childbirth ** | 1.61 | 1.00 | 0.86 | 92.6* |
| Breastfeeding ** | 1.61 | 1.00 | 0.92 | 88.9* |
| How to influence gene expression of the baby in-utero ** | 2.43 | 2.00 | 0.92 | 55.6 |
| Skills for building secure attachment between the couple ** | 1.86 | 2.00 | 0.93 | 81.5* |
| Being aware of generational parenting patterns ** | 2.36 | 2.00 | 0.78 | 59.3 |
| Education on conscious awareness of baby in-utero ** | 2.04 | 2.00 | 0.88 | 66.7 |
| Mindfulness skills for pregnancy, labour, birth, and post birth ** | 1.68 | 2.00 | 0.72 | 92.6* |
| Intentional communication to baby during pregnancy ** | 1.79 | 1.50 | 0.99 | 77.8* |
| Strengthening the couple relationship for the transition to parenthood (e.g., communication, role identity, maintaining | | | | |

| | | | | |
|---|---|---|---|---|
| intimacy, getting needs met, conflict resolution, how to emotionally support each other, create, maintain, and sustain connection) ** | 1.61 | 1.00 | 0.92 | 88.9* |
| Ways to include dad/partner from conception onwards ** | 1.64 | 1.00 | 0.83 | 85.2* |
| Role identity through the transition to parenthood ** | 2.00 | 2.00 | 0.90 | 74.1 |
| Self-care ** | 1.68 | 1.50 | 0.91 | 88.9* |
| Stress management skills | 1.61 | 1.00 | 0.88 | 92.6* |
| Content that considers the needs and importance of the father during pregnancy, birth, and post birth | 1.71 | 2.00 | 0.76 | 88.9* |
| Obstetric violence and how to navigate pressure my medical staff | 2.00 | 2.00 | 1.09 | 66.7 |
| How a parent's thoughts and emotions impact a prenate | 1.64 | 1.50 | 0.87 | 92.6* |
| Local support services | 1.82 | 2.00 | 0.86 | 88.9* |
| Positive strategies to manage emotional triggers and reactions during pregnancy and post birth | 1.75 | 2.00 | 0.89 | 92.6* |
| Hypnotherapy for labour and birth | 2.50 | 2.00 | 1.04 | 55.6 |
| Medical facts and positive assurance that a positive birth experience is possible | 1.86 | 2.00 | 0.93 | 77.8* |
| Content pitched to match cultural and religious backgrounds of parents | 2.11 | 2.00 | 0.92 | 66.7 |
| Content that demystifies pregnancy and birth and clearly explains how the body changes during | | | | |

| | | | | |
|---|---|---|---|---|
| pregnancy and post birth | 1.64 | 1.00 | 0.91 | 88.9* |
| Lifestyle impacts of parents on prenates | 1.61 | 1.00 | 0.99 | 88.9* |
| Content that focusses on the daily reality of pregnancy and parenting post birth | 1.68 | 2.00 | 0.86 | 92.6* |
| Relaxation techniques for labour and birth | 1.61 | 1.50 | 0.83 | 96.3* |
| Have guest parents share their experiences and stories | 2.18 | 2.00 | 0.98 | 81.5* |
| What to look for in baby once born to know what is normal versus something wrong | 1.82 | 2.00 | 1.06 | 88.9* |
| Breathing techniques for birth | 1.64 | 1.00 | 0.91 | 88.9* |
| Diet and exercise regimen for mother during pregnancy | 1.64 | 1.00 | 1.03 | 85.2* |
| Videos of positive birth experiences | 2.18 | 2.00 | 1.19 | 74.1 |
| Content that normalises that birth and the first months post birth may not go as planned | 1.82 | 2.00 | 0.95 | 81.5* |
| Tips on how to be a good enough parent for the first six months post birth | 1.68 | 1.50 | 0.91 | 88.9* |
| Signs of postnatal depression | 1.46 | 1.00 | 0.84 | 96.3* |
| Reality of an emergency caesarean section (e.g., emotions, recovery, bonding with baby at birth, unmet birth plan expectations) | 1.75 | 2.00 | 0.93 | 92.6* |
| How to say ‘no’ and have freedom of choice for baby’s health issues (e.g., | | | | |

| | | | | |
|---|---|---|---|---|
| immunisation) | 1.93 | 1.50 | 1.18 | 74.1 |
| How to hire and fire a birthing team | 2.29 | 2.00 | 1.24 | 66.7 |
| How to process emotion and trauma of any previous pregnancy losses | 1.82 | 2.00 | 0.98 | 88.9* |

* Consensus was reached
** Item originated from the literature

***What content do you think is ineffective regarding your needs as a parent when considering PPN parenting programs?*** Of the 13 items presented to the panellists, none reached consensus and all were included in the round 3 questionnaire.

Table 7

*Round 2 Items Relating to "Content Perceived to be Ineffective Regarding Your Needs as a Parent When Considering PPN Parenting Programs" (Study 3, n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Promoting the scheduling of caesarean sections for birth | 2.79 | 3.00 | 1.29 | 40.7 |
| Focus on birth being a medical procedure | 2.57 | 2.00 | 1.32 | 55.6 |
| Outdated parenting philosophies | 2.46 | 2.00 | 1.53 | 59.3 |
| Birth videos of painful labours | 2.64 | 3.00 | 1.57 | 44.4 |
| Focus on drug use and invasive procedures in labour and birth as the only options | 2.71 | 2.50 | 1.56 | 48.1 |
| Immunisation | 3.68 | 4.00 | 1.25 | 18.5 |
| OB/GYNs focussing on 'what can go wrong' to promote fear and need for medical interventions for birth | 2.57 | 2.00 | 1.37 | 55.6 |
| Content that is not contextualised for the father too | 2.43 | 2.00 | 1.29 | 63.0 |

| | | | | |
|---|---|---|---|---|
| Any content that disempowers a mother's and baby's natural ability to birth | 2.36 | 1.00 | 1.75 | 59.3 |
| Any content delivered with judgement and personal bias by the facilitator | 2.18 | 1.00 | 1.70 | 74.1 |
| Mandated breastfeeding (i.e., leads to feeling judged if physically not able) | 2.14 | 1.50 | 1.51 | 74.1 |
| Any content that is not delivered in a way that promotes choice | 2.14 | 1.50 | 1.46 | 70.4 |
| Any content that is delivered in a way that is condescending | 2.21 | 1.00 | 1.71 | 70.4 |

***What are the most effective ways PPN parenting programs and/or facilitators of programs could maintain your level of engagement and involvement as a parent once a program has started?*** Of the 28 items included in this question, 24 attained consensus (85.71%) and the remaining four items were included in round 2.

Table 8

*Round 2 Items Relating to "The Most Effective Ways PPN Parenting Programs and/or Facilitators of Programs Could Maintain Your Level of Engagement and Involvement as a Parent Once a Program has Started" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Delivered in your home | 2.68 | 3.00 | 0.98 | 48.1 |
| Individualised and personalised to focus on needs of each couple | 1.79 | 2.00 | 0.63 | 88.9* |
| Content that focusses on the 'why' not the mechanics | 1.96 | 2.00 | 0.69 | 85.2* |
| By creating a social/community environment | 1.93 | 2.00 | 0.72 | 85.2* |

| | | | | |
|---|---|---|---|---|
| Content that focusses on health and wellbeing of baby | 1.50 | 1.50 | 0.51 | 100* |
| Interactive with other couples (e.g., role plays, conceptual development through discussion) | 2.18 | 2.00 | 0.98 | 66.7 |
| Make sessions fun, interesting, and entertaining | 1.29 | 1.00 | 0.46 | 100* |
| Ensure skills taught can be easily used in daily life | 1.21 | 1.00 | 0.42 | 100* |
| Facilitator to provide feedback from skill practice so I can learn and grow | 1.79 | 2.00 | 0.83 | 81.5* |
| Sessions to be experiential and interactive with discussions | 1.61 | 1.00 | 0.79 | 88.9* |
| Opportunities to learn by doing with activities, props, live demos and tasks (e.g., nappies/diapers, dolls) | 1.36 | 1.00 | 0.62 | 92.6* |
| Content delivered without judgement | 1.25 | 1.00 | 0.44 | 100* |
| Discuss fears and hopes of parents | 1.39 | 1.00 | 0.50 | 100* |
| Share real life stories (e.g., video, guest parent speakers) | 1.61 | 2.00 | 0.57 | 96.3* |
| Create a supportive environment | 1.32 | 1.00 | 0.47 | 100* |
| Give practice and reflective activities to do at home between sessions | 1.93 | 2.00 | 0.77 | 81.5* |
| Keep content relevant, simple, accurate, and practical | 1.21 | 1.00 | 0.42 | 100* |
| Seek topics from group before starting and include the topics throughout | 1.82 | 2.00 | 0.77 | 85.2* |

| | | | | |
|---|---|---|---|---|
| Provide a schedule of topics that will be covered up front | 1.61 | 2.00 | 0.63 | 92.6* |
| Facilitator to be engaging, enthusiastic, confident, interested in content | 1.21 | 1.00 | 0.42 | 100* |
| Facilitator to be emotionally connected | 1.43 | 1.00 | 0.57 | 96.3* |
| Start each session with a debrief of between session experiences | 1.61 | 1.00 | 0.74 | 88.9* |
| Focus sessions on both parents and on how to work as a team/partnership | 1.29 | 1.00 | 0.46 | 100* |
| Facilitator to follow up between sessions | 2.00 | 2.00 | 0.90 | 66.7 |
| To be treated as adults by the facilitator | 1.32 | 1.00 | 0.48 | 100* |
| Frequent breaks | 1.93 | 2.00 | 0.86 | 81.5* |
| Hospital tour | 1.57 | 1.00 | 0.74 | 85.2* |
| Receive a completion certificate | 3.21 | 3.00 | 0.88 | 70.4 |

* Consensus was reached

***Which groups of parents do you believe may benefit from having access to PPN parenting programs?*** Consensus was reached on eight out of the nine items for this question (88.89%), leaving one item ("existing parents who are pregnant again") to be re-rated in round 3.

Table 9

*Round 2 Items Relating to "Groups of Parents Who May Benefit from Having Access to PPN Parenting Programs" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| First-time parents ** | 1.04 | 1.00 | 0.19 | 100* |
| Existing parents who are pregnant again ** | 2.14 | 2.00 | 0.76 | 74.1 |

| | | | | |
|---|---|---|---|---|
| Pregnant teens ** | 1.07 | 1.00 | 0.26 | 100* |
| Single parents ** | 1.36 | 1.00 | 0.62 | 92.6* |
| Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges) ** | 1.21 | 1.00 | 0.42 | 100* |
| Same-sex couples ** | 1.61 | 1.00 | 0.78 | 85.2* |
| Any expecting parent who wants to attend | 1.21 | 1.00 | 0.42 | 100* |
| Parents wanting to have a home birth | 1.32 | 1.00 | 0.67 | 96.3* |
| Mothers having a vaginal birth after a previous caesarean section | 1.39 | 1.00 | 0.68 | 96.3* |

* Consensus was reached
** Item originated from the literature

***Who do you believe should attend PPN parenting programs?*** Consensus was reached on three out of eight items (37.5%) and of those, two reached consensus in the direction of *disagreement* for the items ("mum only", "dad only"). That is, the panellists identified that PPN parenting programs should not be pitched for mothers or fathers to attend on their own. Alternative options are discussed in the recommendations section later in this chapter. For the five statements where consensus was not reached, they were included again in round 3.

Table 10

*Round 2 Items Relating to "Who Should Attend PPN Parenting Programs" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Mum only ** | 4.25 | 4.00 | 0.75 | 81.4* (Disagree) |
| Dad only ** | 4.14 | 4.00 | 0.93 | 81.4* (Disagree) |
| Both mum and dad/partner ** | 1.14 | 1.00 | 0.36 | 100* |

| | | | | |
|---|---|---|---|---|
| Both mum and dad/partner with some sessions for dad/partner only ** | 2.50 | 2.00 | 1.07 | 59.3 |
| Both mum and dad/partner with some sessions for mum only ** | 2.50 | 2.00 | 1.12 | 55.6 |
| Siblings | 3.04 | 3.00 | 0.96 | 25.9 |
| Grandparents | 3.43 | 3.00 | 0.96 | 11.1 |
| Support people (other than parents) | 2.54 | 3.00 | 1.04 | 48.1 |

* Consensus was reached
** Item originated from the literature

***In your opinion, what factors would contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?*** Two of the 17 items attained consensus (11.76%), leaving 15 items to be forwarded to round 3.

Table 11

*Round 2 Items Relating to "Factors That May Contribute to Fathers/Partners Attending Less PPN Parenting Related Sessions/Programs than Expecting Mothers" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Work schedule | 1.89 | 2.00 | 1.03 | 85.2* |
| Focus of the programs on delivery of baby | 2.71 | 3.00 | 1.08 | 44.4 |
| Perception that pregnancy and birthing is mum's role | 2.04 | 2.00 | 1.11 | 74.1 |
| In general, men avoid medical services | 2.68 | 2.50 | 0.98 | 48.1 |
| Fathers do not feel the content is relevant or helpful to them and are not engaged | 2.39 | 2.00 | 0.96 | 55.6 |
| Lack of commitment to attend (competing priorities) | 2.68 | 2.50 | 1.12 | 48.1 |

| | | | | |
|---|---|---|---|---|
| Fear (e.g., of the unknown, having to discuss feelings, of becoming overwhelmed, of being judged by other men, of being uncomfortable) | 2.57 | 2.50 | 1.32 | 48.1 |
| Perception of father that he cannot influence the pregnancy | 2.29 | 2.00 | 1.01 | 66.7 |
| Societal and cultural biases/stereotypes that pregnancy and parenting is the woman's role | 2.39 | 2.00 | 1.06 | 59.3 |
| Lack of comfort discussing personal experience in a group setting | 2.46 | 2.00 | 1.17 | 63.0 |
| It is a sign of weakness for a father to admit he does not know everything | 3.25 | 3.00 | 1.18 | 25.9 |
| Perceived general lack of interest | 3.18 | 3.00 | 1.12 | 18.5 |
| Fathers may feel left out and as though they do not belong when they attend class | 2.39 | 2.00 | 0.92 | 59.3 |
| Fathers do not directly feel the pregnancy, leading to less connection with role of being a father | 2.64 | 2.00 | 0.95 | 51.9 |
| General lack of understanding of the importance of the role of the father in child care | 1.89 | 2.00 | 1.03 | 77.8* |
| Poor paternal leave policies placing less importance on fathers | 2.14 | 2.00 | 0.97 | 66.7 |
| Fathers caretaking other children whilst mum attends class | 2.57 | 2.50 | 1.07 | 51.9 |

* Consensus was reached

***What stage of a pregnancy do you believe is most effective time for PPN parenting programs to start?*** One of the seven (14.29%) items achieved consensus, and the remaining six formed part of the round 3 questionnaire.

Table 12

*Round 2 Items Relating to "Stage of a Pregnancy That May Be Most Effective for PPN Parenting Programs to Start" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Preconception | 2.71 | 3.00 | 0.97 | 48.1 |
| As soon as the couple discover they are pregnant | 2.46 | 2.50 | 1.14 | 51.9 |
| Trimester one | 2.36 | 2.00 | 1.14 | 63.0 |
| Trimester two | 2.04 | 2.00 | 1.04 | 77.8* |
| Trimester three | 2.11 | 2.00 | 1.20 | 74.1 |
| After first ultrasound | 2.64 | 2.00 | 0.99 | 51.9 |
| When the parent/s are ready | 2.07 | 2.00 | 1.12 | 66.7 |

* Consensus was reached

***What stage of a pregnancy do you believe is most effective time for PPN parenting programs to end?*** Consistent with the literature where consensus has not been established, none of the five items attained consensus amongst the panellists, and all items were included in round 3.

Table 13

*Round 2 Items Relating to "Most Effective Time for PPN Parenting Programs to End" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Before birth ** | 3.75 | 4.00 | 1.18 | 14.8 |
| Within three months post birth ** | 2.79 | 2.50 | 1.19 | 48.1 |

| | | | | |
|---|---|---|---|---|
| Within three to six months post birth ** | 2.50 | 2.00 | 1.20 | 63.0 |
| Within six to 12 months post birth ** | 2.75 | 2.50 | 1.11 | 48.1 |
| Ongoing on an as needs basis | 2.11 | 2.00 | 1.07 | 70.4 |

* Consensus was reached
** Item originated from the literature

***How can information in PPN parenting programs be most effectively presented/delivered?*** Ten of the 13 items presented for this question achieved consensus (76.92%), leaving three items for inclusion in the subsequent round.

Table 14

*Round 2 Items Relating to "How Information in PPN Parenting Programs Can Most Effectively be Presented/Delivered" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Lecture style ** | 2.86 | 3.00 | 0.89 | 40.7 |
| Use of video ** | 2.18 | 2.00 | 0.82 | 81.5* |
| Manual/workbook ** | 2.50 | 2.00 | 0.96 | 63.0 |
| Experiential (e.g., practicing skills, modelling of skills, role playing, parents sharing experiences, discussions) ** | 1.64 | 1.00 | 0.95 | 81.5* |
| Home practice activities to consolidate learning ** | 1.71 | 2.00 | 0.71 | 92.6* |
| Standardised one-size-fits-all program ** | 3.96 | 4.00 | 0.74 | 74.1 (Disagree) |
| Individualised program where couples can select modules that apply to their unique circumstances ** | 1.82 | 2.00 | 0.67 | 85.2* |
| A combination of standardised core modules along with the ability to select other modules that apply to your unique | | | | |

| | | | | |
|---|---|---|---|---|
| circumstances ** | 1.50 | 1.50 | 0.51 | 100* |
| Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, printed resources, take home tasks) ** | 1.61 | 1.00 | 0.79 | 88.9* |
| Incorporate mingle time with refreshments where couples can get to know each other as part of the program | 1.82 | 2.00 | 0.86 | 88.9* |
| Up-to-date resources available online | 1.43 | 1.00 | 0.57 | 96.3* |
| Incorporate question and discussion time to discuss partnership and family (not just mum and baby focus) | 1.54 | 1.00 | 0.84 | 85.2* |
| Facilitator to ask for feedback and incorporate changes based on it | 1.50 | 1.00 | 0.64 | 92.6* |

* Consensus was reached
** Item originated from the literature

***What do you believe is the most effective location/platform for delivery of PPN parenting programs?*** Fifteen items were presented to the panellists and none of them reached consensus. All were included in the round 3 questionnaire.

Table 15

*Round 2 Items Relating to "The Most Effective Location/Platform for Delivery of PPN Parenting Programs" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| In-person group sessions in a hospital setting ** | 2.32 | 2.00 | 1.06 | 63.0 |
| In-person group sessions in a training room environment ** | 2.39 | 2.00 | 0.92 | 70.4 |
| In-person couple session in a hospital setting ** | 2.14 | 2.00 | 0.80 | 74.1 |
| In-person couple sessions in a | | | | |

| | | | | |
|---|---|---|---|---|
| training room environment ** | 2.32 | 2.00 | 0.86 | 66.7 |
| Self-guided learning from home (e.g., with downloadable videos, worksheets, manual) ** | 2.79 | 2.00 | 1.03 | 55.6 |
| 'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions) ** | 2.36 | 2.00 | 0.99 | 74.1 |
| 'Live' webinar sessions that are not interactive (where a parent can listen 'live' to sessions, but cannot actively contribute) ** | 3.36 | 3.00 | 1.13 | 25.9 |
| Sessions delivered via home visits ** | 2.25 | 2.00 | 0.93 | 63.0 |
| Sessions delivered in the workplace ** | 3.43 | 3.50 | 1.10 | 22.2 |
| Sessions delivered in community centers ** | 2.18 | 2.00 | 0.77 | 74.1 |
| Sessions delivered via phone, Skype, Zoom (or other similar platforms) ** | 2.61 | 2.50 | 0.92 | 48.1 |
| Small group sessions in home environment | 2.46 | 2.00 | 0.92 | 63.0 |
| Father-only group sessions held monthly during pregnancy and post birth | 2.43 | 2.00 | 0.88 | 63.0 |
| Any location that has easy access parking and refreshments provided | 2.50 | 2.00 | 1.00 | 63.0 |
| Sessions for fathers held in a birthing room with all of the equipment there so it becomes 'real' | 2.39 | 2.00 | 1.03 | 63.0 |

** Item originated from the literature

***In your opinion who ought to deliver PPN parenting programs?*** Seven of the 14 items (50%) relating to this question reached consensus. The remaining seven items were forwarded to the final round.

Table 16

*Round 2 Items Relating to "Who Ought to Deliver PPN Parenting Programs" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| OB/GYN ** | 2.25 | 2.00 | 0.93 | 63.0 |
| Midwife ** | 1.64 | 2.00 | 0.62 | 92.6* |
| Doula ** | 2.14 | 2.00 | 0.85 | 63.0 |
| Childbirth educator ** | 1.71 | 2.00 | 0.81 | 96.3* |
| Nurse ** | 1.86 | 2.00 | 0.80 | 81.5* |
| Psychologist, social worker, therapist, counsellor, coach ** | 2.00 | 2.00 | 1.02 | 74.1 |
| Academic researchers ** | 3.57 | 4.00 | 0.92 | 51.8 (Disagree) |
| Parents ** | 2.29 | 2.00 | 0.85 | 66.7 |
| Elders from the community ** | 2.50 | 2.50 | 0.96 | 48.1 |
| Collaboration between a range of qualified pregnancy and birth specialists | 1.36 | 1.00 | 0.49 | 100* |
| Male midwives/nurses to deliver father-only sessions | 3.18 | 3.50 | 1.09 | 37.0 |
| Anyone who understands the father role in pregnancy and who can deliver material in a non-condescending way | 1.79 | 2.00 | 0.78 | 77.8* |
| Anyone who is qualified and is caring, competent, non-judgmental, and confident | 1.54 | 1.00 | 0.57 | 96.3* |

| | | | | |
|---|---|---|---|---|
| Anyone who is qualified and engaging, approachable, and knowledgeable | 1.57 | 1.00 | 0.74 | 92.6* |

* Consensus was reached
** Item originated from the literature

***What do you believe is the most effective length of each session in PPN parenting programs?*** None of the seven items attained consensus amongst panellists for this question, which is consistent with the literature. All were included in round 3.

Table 17

*Round 2 Items Relating to "The Most Effective Length of Each Session in PPN Parenting Programs" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| 40-45 minutes | 3.19 | 4.00 | 1.21 | 33.3 |
| One hour | 2.89 | 3.00 | 1.31 | 44.4 |
| 1.5 hours | 2.74 | 3.00 | 0.94 | 40.7 |
| Two hours | 2.59 | 2.00 | 1.01 | 55.6 |
| Half day | 2.81 | 2.00 | 1.33 | 51.9 |
| Full day | 3.44 | 4.00 | 1.19 | 55.5 (Disagree) |
| No set-time—person specific | 2.81 | 3.00 | 1.11 | 40.7 |

***In your opinion, what is the most effective amount of time between each session?*** Seven items were presented to panellists and one met the consensus criteria (14.29%). The remaining six items were included again in the final round for re-rating.

Table 18

*Round 2 Items Relating to "The Most Effective Amount of Time Between Each Session" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Between 3-6 days | 3.37 | 4.00 | 1.08 | 25.9 |

| | | | | |
|---|---|---|---|---|
| One week | 2.63 | 2.00 | 1.33 | 51.9 |
| Two weeks | 2.59 | 2.00 | 0.97 | 51.9 |
| Three weeks | 2.78 | 3.00 | 1.09 | 40.7 |
| One month | 2.96 | 3.00 | 1.32 | 40.7 |
| Five weeks | 3.70 | 4.00 | 0.95 | 74.1 (Disagree) |
| Three months | 4.15 | 4.00 | 0.77 | 85.2* (Disagree) |

* Denotes that consensus was reached

***What do you believe is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?*** Of the 15 items presented, none reached consensus and all were included in round 3 for re-rating.

Table 19

*Round 2 Items Relating to "The Most Effective Overall Length of PPN Parenting Programs in Time (e.g., Number of Weeks or Months)" (Study 3; n=27)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| One weekend | 3.67 | 4.00 | 1.00 | 59.2 (Disagree) |
| One full day | 3.67 | 4.00 | 1.07 | 62.9 (Disagree) |
| Several days | 3.48 | 4.00 | 1.01 | 51.8 (Disagree) |
| One month | 3.48 | 4.00 | 0.89 | 51.8 (Disagree) |
| Six weeks | 3.15 | 3.00 | 1.06 | 48.1 (Disagree) |
| Two months | 3.04 | 3.00 | 1.09 | 37.0 |
| Nine weeks | 3.15 | 3.00 | 0.99 | 29.6 |
| Three months | 3.00 | 3.00 | 1.11 | 33.3 |

| | | | | |
|---|---|---|---|---|
| Six months | 3.07 | 3.00 | 1.14 | 29.6 |
| From two months preconception until 10 weeks post birth | 2.56 | 3.00 | 1.12 | 48.1 |
| From conception until post birth | 2.59 | 3.00 | 1.08 | 48.1 |
| From trimester one until birth | 3.04 | 3.00 | 1.06 | 33.3 |
| From trimester one until 12 months post birth | 3.04 | 3.00 | 1.22 | 48.1 (Disagree) |
| From trimester three until six weeks post birth | 2.93 | 3.00 | 1.03 | 33.3 |
| No set time; needs-based of the parents | 2.15 | 2.00 | 1.23 | 70.4 |

***If you have any additional comments regarding round 2 or if there are other questions related to the topic that you believe are important to present to the panel, please list these so they can be added to round 3 considerations.*** Whilst four panellists shared comments, no new information that specifically related to the questions in the study was included. Comments included explanations for why the panellists responded to questions the way they did.

**Quantitative Analysis**

**Round 3.** Of the 27 panellists from round 2, 85.19% completed round 3 (*n*=23), leaving an attrition rate of 14.81%, which is well above the 30% margin recommended in the literature (Sumsion, 1998). The round 3 panel was made up of 11 male (47.8%) and 12 female (52.2%) panellists. Fourteen questions, and the 118 subsequent items that did not attain consensus in round 2, were presented to the panel in the third and final round of the study (refer to Appendix I for the round 3 questionnaire). Panellists were required to re-rate

their level of [dis]agreement. In accordance with the literature only a slight increase in consensus was attained (Hsu & Sandford, 2007), and as will be outlined, the increase was not observed across all questions. As with round 2, central tendency, variability, and percentage delineating consensus (or not) are displayed by question (see Tables 20 to 34). A brief outline of results is included for each question below. A discussion follows that links both consensus and non-consensus findings to the literature, as well as original interpretation and recommendations for future PPN parenting programs.

In total (across the three rounds) 235 items were presented to panellists for the opportunity to achieve consensus, and consensus was attained for 126 items (53.62%). Agreement was not reached by panellists on the remaining 109 items (46.38%). For ease of reading, all items that reached consensus across the three rounds can be seen in Appendix J, and all non-consensus items are detailed in Appendix K.

***What factors do you believe may impact both the development of prenates during gestation and influence who babies become post birth?*** Four items were presented and none reached consensus in this final round.

Table 20

*Round 3 Items Regarding "Factors That May Impact Both the Development of Prenates during Gestation and Influence Who Babies Become Post Birth" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Age of mother ** | 2.22 | 2.00 | 0.99 | 73.9 |
| Reincarnation/past lives (baby brings who s/he is into this lifetime) | 3.26 | 3.00 | 1.25 | 43.5 (Disagree) |
| Ancestral story (e.g., quality of parental relationships in past generations) | 2.43 | 2.00 | 0.99 | 65.2 |
| A father's unprocessed emotions relating to any previous pregnancy losses | | | | |

| | | | | |
|---|---|---|---|---|
| (e.g., miscarriage, abortion, twin loss, still born) | 2.74 | 3.00 | 0.96 | 47.8 |

** Item originated from the literature

***What content do you think is most effective regarding your needs as a parent when considering PPN parenting programs?*** Twelve items were presented for re-rating, two of which (16.67%) attained consensus.

Table 21

*Round 3 Items Relating to "Content Perceived to be Most Effective Regarding Your Needs as a Parent When Considering PPN Parenting Programs" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Sleep training ** | 2.00 | 2.00 | 0.60 | 91.3* |
| Education on developmental milestones in womb ** | 1.87 | 2.00 | 0.63 | 87.0* |
| How to influence gene expression of the baby in-utero ** | 2.83 | 3.00 | 1.11 | 47.8 |
| Being aware of generational parenting patterns ** | 2.48 | 2.00 | 0.99 | 60.9 |
| Education on conscious awareness of baby in-utero ** | 2.30 | 2.00 | 0.77 | 69.6 |
| Role identity through the transition to parenthood ** | 2.17 | 2.00 | 0.83 | 73.9* |
| Obstetric violence and how to navigate pressure my medical staff | 2.13 | 2.00 | 1.18 | 69.6 |
| Hypnotherapy for labour and birth | 2.61 | 3.00 | 1.12 | 43.5 |
| Content pitched to match cultural and religious backgrounds of parents | 2.43 | 2.00 | 1.08 | 60.9 |

| | | | | |
|---|---|---|---|---|
| Videos of positive birth experiences | 2.13 | 2.00 | 0.87 | 65.2 |
| How to say 'no' and have freedom of choice for a baby's health issues (e.g., immunisation) | 2.13 | 2.00 | 1.14 | 69.6 |
| How to hire and fire a birthing team | 2.39 | 2.00 | 0.89 | 60.9 |

* Consensus was reached
** Item originated from the literature

***What content do you think is ineffective regarding your needs as a parent when considering PPN parenting programs?*** Of the 13 items put forward to the panellists, six (46.15%) reached consensus.

Table 22

*Round 3 Items Relating To "Content Perceived to be Ineffective Regarding Your Needs as a Parent when Considering PPN Parenting Programs" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Promoting the scheduling of caesarean sections for birth | 2.26 | 2.00 | 1.17 | 60.9 |
| Focus on birth being a medical procedure | 2.39 | 2.00 | 1.41 | 65.2 |
| Outdated parenting philosophies | 2.22 | 2.00 | 1.20 | 78.3* |
| Birth videos of painful labours | 2.04 | 2.00 | 1.22 | 73.9 |
| Focus on drug use and invasive procedures in labour and birth as the only options | 2.00 | 2.00 | 1.13 | 78.3* |
| Immunisation | 3.30 | 4.00 | 1.46 | 56.5 (Disagree) |
| OB/GYNs focussing on 'what can go wrong' to promote fear and need | | | | |

| | | | | |
|---|---|---|---|---|
| for medical interventions for birth | 2.13 | 2.00 | 1.25 | 65.2 |
| Content that is not contextualised for the father too | 2.52 | 2.00 | 1.24 | 56.5 |
| Any content that disempowers a mother's and baby's natural ability to birth | 1.91 | 1.00 | 1.24 | 78.3* |
| Any content delivered with judgement and personal bias by the facilitator | 1.91 | 1.00 | 1.24 | 78.3* |
| Mandated breastfeeding (i.e., leads to feeling judged if physically not able) | 1.91 | 2.00 | 1.08 | 73.9 |
| Any content that is not delivered in a way that promotes choice | 1.78 | 1.00 | 1.13 | 82.6* |
| Any content that is delivered in a way that is condescending | 1.87 | 1.00 | 1.22 | 78.3* |

* Consensus was reached

***What are the most effective ways PPN pregnancy programs and/or facilitators of programs could maintain your level of engagement and involvement as a parent once a program has started?*** Four items were presented and one met the criteria for consensus (25%).

Table 23

*Round 3 Items Relating to "The Most Effective Ways PPN Parenting Programs and/or Facilitators of Programs Could Maintain Your Level of Engagement and Involvement as a Parent Once a Program has Started" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Delivered in your home | 2.74 | 3.00 | 1.05 | 47.8 |

| | | | | |
|---|---|---|---|---|
| Interactive with other couples (e.g., role plays, conceptual development through discussion) | 2.17 | 2.00 | 0.65 | 78.3* |
| Facilitator to follow up between sessions | 2.39 | 2.00 | 0.78 | 60.9 |
| Receive a completion certificate | 3.57 | 4.00 | 1.08 | 52.1 (Disagree) |

* Consensus was reached

***Which groups of parents do you believe may benefit from having access to PPN parenting programs?*** One item ("existing parents who are pregnant again") was offered for re-rating and did not reach consensus by the panel.

Table 24

*Round 3 Items Relating to "Groups of Parents Who May Benefit From Having Access to PPN Parenting Programs" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Existing parents who are pregnant again | 2.30 | 2.00 | 0.88 | 60.9 |

***Who do you believe should attend PPN parenting programs?*** Of the five statements where consensus was not reached in round 2, when re-rated in round 3, one met consensus criteria (20%).

Table 25

*Round 3 Items Relating to "Who Should Attend PPN Parenting Programs" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Both mum and dad/partner with some sessions for dad/partner only ** | 2.09 | 2.00 | 0.85 | 78.3* |
| Both mum and dad/partner with some sessions for mum only ** | 2.43 | 2.00 | 0.84 | 60.9 |

| | | | | |
|---|---|---|---|---|
| Siblings | 3.22 | 3.00 | 0.80 | 34.7 (Disagree) |
| Grandparents | 3.39 | 4.00 | 0.84 | 52.1 (Disagree) |
| Support people (other than parents) | 2.57 | 2.00 | 0.99 | 52.1 |

* Consensus was reached
** Item originated from the literature

***In your opinion, what factors would contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?*** Fifteen items were included from round 2 and of these, one attained consensus (0.67%).

Table 26

*Round 3 Items Relating to "Factors That May Contribute to Fathers/Partners Attending Less PPN Parenting Related Sessions/Programs than Expecting Mothers" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Focus of the programs on 'delivery of baby' | 2.87 | 2.00 | 1.06 | 56.5 |
| Perception that pregnancy and birthing is mum's role | 2.26 | 2.00 | 0.92 | 78.3* |
| In general, men avoid medical services | 2.96 | 3.00 | 1.06 | 43.5 |
| Fathers do not feel the content is relevant or helpful to them and are not engaged | 2.48 | 2.00 | 1.12 | 65.2 |
| Lack of commitment to attend (competing priorities) | 2.48 | 2.00 | 1.16 | 69.6 |
| Fear (e.g., of the unknown, having to discuss feelings, of becoming overwhelmed, of being judged by other men, of being uncomfortable) | 2.61 | 2.00 | 1.03 | 60.9 |

| | | | | |
|---|---|---|---|---|
| Perception of father that he cannot influence the pregnancy | 2.61 | 2.00 | 1.08 | 56.5 |
| Societal and cultural biases/stereotypes that pregnancy and parenting is the woman's role | 2.39 | 2.00 | 0.94 | 73.9 |
| Lack of comfort discussing personal experience in a group setting | 2.43 | 2.00 | 1.04 | 69.6 |
| It is a sign of weakness for a father to admit he does not know everything | 3.52 | 4.00 | 0.99 | 60.8 (Disagree) |
| Perceived general lack of interest | 3.43 | 4.00 | 1.08 | 56.5 (Disagree) |
| Fathers may feel left out and as though they do not belong when they attend class | 2.43 | 2.00 | 0.73 | 69.6 |
| Fathers do not directly feel the pregnancy, leading to less connection with role of being a father | 3.00 | 3.00 | 1.13 | 47.8 |
| Poor paternal leave policies placing less importance on fathers | 2.35 | 2.00 | 1.15 | 65.2 |
| Fathers caretaking other children whilst mum attends class | 2.48 | 2.00 | .90 | 60.9 |

* Consensus was reached

***What stage of a pregnancy do you believe is the most effective for PPN parenting programs to start?*** One of the six (16.67%) items achieved consensus in this final round.

Table 27

*Round 3 Items Relating to "Stage of a Pregnancy That May Be Most Effective for PPN Parenting Programs to Start" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Preconception | 3.13 | 3.00 | 1.06 | 39.1 (Disagree) |
| As soon as the couple discover they are pregnant | 2.43 | 2.00 | 1.16 | 52.2 |
| Trimester one | 2.39 | 2.00 | 0.78 | 60.9 |
| Trimester three | 2.74 | 2.00 | 1.36 | 52.2 |
| After first ultrasound | 2.78 | 3.00 | 0.99 | 47.8 |
| When the parent/s are ready | 2.04 | 2.00 | 0.98 | 78.3* |

* Consensus was reached

***What stage of a pregnancy do you believe is the most effective for PPN parenting programs to end?*** No changes were evident in the findings from round 2 results for the items relating to this question. After re-rating, all five items remained under the consensus threshold. As stated in round 2 results, this finding was consistent with the literature.

Table 28

*Round 3 Items Relating to "Most Effective Time for PPN Parenting Programs to End" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Before birth ** | 3.91 | 4.00 | 1.20 | 73.9 (Disagree) |
| Within three months post birth ** | 2.91 | 3.00 | 1.08 | 39.1 |
| Within three to six months post birth ** | 2.78 | 3.00 | 0.99 | 43.5 |
| Within six to 12 months post birth ** | 2.83 | 3.00 | 1.11 | 39.1 |
| Ongoing on an as needs basis | 2.22 | 2.00 | 1.09 | 56.5 |

** Item originated from the literature

***How do you believe information in PPN parenting programs can most effectively be presented/delivered?*** Three items were re-presented and no consensus was accomplished.

Table 29

*Round 3 Items Relating to "How Information in PPN Parenting Programs Can Most Effectively be Presented/Delivered" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Lecture style ** | 3.35 | 4.00 | 1.15 | 52.2 (Disagree) |
| Manual/workbook ** | 3.35 | 3.00 | 1.03 | 47.8 (Disagree) |
| Standardised one-size-fits-all program ** | 4.00 | 4.00 | 0.95 | 73.9 (Disagree) |

** Item originated from the literature

***What do you believe is the most effective location/platform for delivery of PPN parenting programs?*** Fifteen items were presented to the panellists and one (0.07%) reached consensus.

Table 30

*Round 3 Items Relating to "The Most Effective Location/Platform for Delivery of PPN Parenting Programs" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| In-person group sessions in a hospital setting ** | 2.17 | 2.00 | 1.15 | 78.3* |
| In-person group sessions in a training room environment ** | 2.43 | 2.00 | 1.08 | 69.6 |
| In-person couple session in a hospital setting ** | 2.52 | 2.00 | 0.95 | 60.9 |
| In-person couple sessions in a training room environment ** | 2.70 | 2.00 | 1.02 | 60.9 |

| | | | | |
|---|---|---|---|---|
| Self-guided learning from home (e.g., with downloadable videos, worksheets, manual) ** | 2.83 | 2.00 | 1.03 | 56.5 |
| 'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions) ** | 2.48 | 2.00 | 1.24 | 69.6 |
| 'Live' webinar sessions that are not interactive (where a parent can listen 'live' but cannot actively contribute) ** | 3.61 | 4.00 | 0.89 | 60.9 (Disagree) |
| Sessions delivered via home visits ** | 2.52 | 2.00 | 1.08 | 60.9 |
| Sessions delivered in the workplace ** | 3.83 | 4.00 | 0.98 | 69.6 (Disagree) |
| Sessions delivered in community centers ** | 2.17 | 2.00 | 0.94 | 73.9 |
| Sessions delivered via phone, Skype, Zoom (or other similar platforms) ** | 2.74 | 2.00 | 1.14 | 56.5 |
| Small group sessions in home environment | 2.48 | 2.00 | 1.12 | 65.2 |
| Father-only group sessions held monthly during pregnancy and post birth | 3.00 | 3.00 | 0.85 | 34.8 |
| Any location that has easy access parking and refreshments provided | 2.70 | 3.00 | 1.26 | 47.8 |
| Sessions for fathers held in a birthing room with all of the equipment there so it becomes 'real' | 2.61 | 3.00 | 1.12 | 47.8 |

* Consensus was reached
** Item originated from the literature

***In your opinion who ought to deliver PPN parenting programs?*** Of the seven items provided for re-rating, one met consensus status.

Table 31

*Round 3 Items Relating to "Who Ought to Deliver PPN Parenting Programs" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| OB/GYN ** | 2.61 | 2.00 | 1.31 | 65.2 |
| Doula ** | 2.43 | 2.00 | 1.08 | 69.6 |
| Psychologist, social worker, therapist, counsellor, coach ** | 2.87 | 3.00 | 1.14 | 39.1 |
| Academic researchers ** | 4.17 | 4.00 | 0.65 | 86.9* (Disagree) |
| Parents ** | 2.87 | 3.00 | 1.06 | 43.5 |
| Elders from the community ** | 3.09 | 3.00 | 0.99 | 39.1 (Disagree) |
| Male midwives/nurses to deliver father-only sessions | 2.87 | 3.00 | 0.82 | 39.1 |

* Consensus was reached
** Item originated from the literature

***What do you believe is the most effective length of each session in PPN parenting programs?*** None of the seven items attained consensus in this round, which is consistent with the literature.

Table 32.

*Round 3 Items Relating to "The Most Effective Length of Each Session in PPN Parenting Programs" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| 40-45 minutes | 3.13 | 3.00 | 1.18 | 39.1 (Disagree) |

| | | | | |
|---|---|---|---|---|
| One hour | 3.00 | 3.00 | 1.13 | 43.5 |
| 1.5 hours | 2.87 | 3.00 | 0.92 | 30.4 |
| Two hours | 2.26 | 2.00 | 1.18 | 60.9 |
| Half day | 3.13 | 3.00 | 1.18 | 47.8 (Disagree) |
| Full day | 3.22 | 3.00 | 1.17 | 39.1 (Disagree) |
| No set-time—person specific | 3.09 | 3.00 | 1.08 | 34.8 (Disagree) |

***In your opinion, what is the most effective amount of time between each session?***

Six items were included in this round, and one (16.67%) reached consensus.

Table 33

*Round 3 Items Relating to "The Most Effective Amount of Time Between Each Session" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Between 3-6 days | 3.52 | 4.00 | 0.89 | 60.9 (Disagree) |
| One week | 2.35 | 2.00 | 1.11 | 69.6 |
| Two weeks | 2.13 | 2.00 | 1.06 | 73.9 |
| Three weeks | 3.35 | 4.00 | 0.83 | 56.5 (Disagree) |
| One month | 3.22 | 4.00 | 1.35 | 52.2 (Disagree) |
| Five weeks | 4.09 | 4.00 | 0.79 | 82.6* (Disagree) |

* Consensus was reached

***What do you believe is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?*** As with round 2, of the 15 items presented, none reached consensus.

Table 34

*Round 3 Items Relating to "The Most Effective Overall Length of PPN Parenting Programs in Time (e.g., Number of Weeks or Months)" (Study 3; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| One weekend | 3.70 | 4.00 | 1.02 | 65.2 (Disagree) |
| One full day | 3.65 | 4.00 | 1.03 | 60.8 (Disagree) |
| Several days | 3.13 | 3.00 | 1.01 | 39.1 (Disagree) |
| One month | 3.48 | 4.00 | 1.04 | 56.5 (Disagree) |
| Six weeks | 3.17 | 3.00 | 1.11 | 43.5 (Disagree) |
| Two months | 3.22 | 3.00 | 1.13 | 47.8 (Disagree) |
| Nine weeks | 3.26 | 3.00 | 1.10 | 47.8 (Disagree) |
| Three months | 3.26 | 3.00 | 1.01 | 43.5 (Disagree) |
| Six months | 3.00 | 3.00 | 1.00 | 39.1 (Disagree) |
| From two months preconception until 10 weeks post birth | 3.04 | 3.00 | 1.19 | 34.8 |
| From conception until post birth | 3.00 | 3.00 | 1.17 | 43.5 (Disagree) |
| From trimester one until birth | 3.00 | 3.00 | 1.13 | 39.1 (Disagree) |
| From trimester one until 12 months post birth | 3.00 | 3.00 | 1.04 | 34.8 (Disagree) |
| From trimester three until six weeks post birth | 3.22 | 3.00 | 0.90 | 47.8 (Disagree) |

| | | | | |
|---|---|---|---|---|
| No set time—needs-based of the parents | 2.70 | 3.00 | 1.15 | 43.5 |

## Discussion

The aim of Study 3 was to learn what parents considered important and relevant inclusions, and exclusions, for content and program delivery logistics of PPN parenting programs for the 21st century. It was the third of four studies, where 23 parents from the USA and Australia completed all three rounds of online questionnaires. The goal was for the panellists to reach consensus on the items presented. The high completion rate of all rounds suggested the importance and timeliness (Goodman, 1987; Hasson et al., 2000; Ward et al., 2014) of considering modern day parents' needs when designing, developing, and delivering PPN parenting programs. The findings were compared with current literature and were considered in the context of the six research questions of this study. A comprehensive list of recommendations for future PPN parenting programs was generated from the final results of the expert parent Delphi methodology study (see Appendix L). A discussion that compared the Study 3 findings with those from the Delphi methodology results from Study 4, which utilised an expert panel of birth professionals, is provided in Chapter 9.

### Research Question 1: What Factors May Impact Both the Development of Prenates during Gestation and Influence who Babies Become Post Birth, that Expecting Parents Would Benefit from Learning About?

Of the 16 items relating to research question 1, all but one attained consensus. This indicated a very strong coherence between existing research and parents' opinions. As a result, all were included in the recommendations of useful information for parents to be educated on in future PPN parenting programs. Whilst the item "age of mother" did not achieve consensus, it was very close to the 75% *a priori* parameter, attaining 73.9%. One possible explanation for the lack of consensus was that with the increase in women becoming

pregnant later in life in the USA and Australia, perception of age being a barrier for healthy prenate development may be diminishing. Statistics from the National Centre for Health Statistics, in the USA, showed that between the years 2000 and 2014, births to women aged 35 and older rose 23 percent, from 7.4 percent to 9.1 percent (Mathews & Hamilton, 2016). Australian-based data from the Australian Institute of Health and Welfare revealed that between the years 2004 and 2014, the proportion of mothers aged 35 and older had also risen from 20 percent to 22 percent (Australian Institute of Health and Welfare [AIHW], 2014).

Of the 11 panellist-generated items, eight were deemed to be potentially impactful on developing prenates and who babies may become post birth, and are largely supported by existing literature. The 11 agreed-upon items were included in the recommendations as possible content for PPN parenting programs. Of these, the most important based on consensus percentages were:

1. sounds, such as talking directly to baby (Barrack, 2007; Chamberlain, 1999e, 2013; Magnani, 2017; Verny & Kelly, 1981);
2. preconception stress (Collins et al., 1993; Harrison & Sidebottom, 2008);
3. social support available to the mother. As discussed in the literature review presented for Study 1 in Chapter 5, research argued that a lack of social support is correlated with low birth weight babies, which is a primary cause of infant mortality (Feinberg et al., 2015; Feldman et al., 2000). Social support has also been found to mitigate stress, anxiety, and depression throughout pregnancies (Albuja et al., 2017; Leung et al., 2017; Milgrom et al., 2008). Women who have access to a range of social support options (e.g., partner, family, friends), have been shown to attend prenatal care early in a pregnancy (Sidebottom et al., 2017; Rodrigo et al., 2016; Sable et al., 1990; Zambrana et al., 1991); and

4. a mother's level of self-empowerment and self-confidence. It has been purported that when a mother attends a PPN parenting program, it can lead to empowered birth decisions (Hanna-Leena Melender, 2002), as well as enhancement of self-perception and confidence in the ability to be a parent (Handfield & Bell, 1995).

Factors, such as a father's unprocessed emotions from any previous pregnancy losses by his partner and quality of parenting relationships in past family generations, were not seen as important influences. They were not included in the recommendations section of this current study. From a literature standpoint, no evidence-based studies were found that directly measured either of these items. The exploration of the possible impacts of family patterns being passed along generations through pregnancy, termed transgenerational imprinting, is an emerging field in the PPN psychology context (e.g., Anacker et al., 2014; Appleton et al., 2013; Wolynn, 2016), and a detailed review was not within scope of the current dissertation.

**Research Question 2: What Content is Most Effective for Inclusion in PPN Parenting Programs?**

Of the 50 items relating to this research question, 25 were drawn from the literature and the remaining 25 were identified by panellists. Overall, results elicited consensus by the panel on 40 of the items, with 10 items remained non-consensual. Twenty-one of the 25 research-based items attained consensus (84%). This provided both sound construct validity for the items, as well as confidence in recommending the items for inclusion in future PPN parenting programs. The items "how to influence gene expression of the baby in-utero", and "being aware of generational parenting patterns" both remained non-consensual after the three-rounds. Whilst not in alignment with current research in the fields of epigenetics and transgenerational imprinting (e.g., Anacker et al., 2014; Appleton et al., 2013; Nathanielsz, 1999; Serpeloni et al., 2017), it was an expected result as the research is cutting edge and still

emerging. It is therefore a reasonable outcome that lay parent audiences may not be up-to-date with current trends in factors that may impact prenates during the PPN time-frames. As these items were not recognised as important by the parent panellists, yet growing empirical evidence suggests otherwise, an opportunity exists to introduce an optional topic of "latest research trends" to parents, who may be interested, in future PPN parenting programs. In hindsight, it would have been useful to canvass this as an item in the Delphi methodology study.

For the 25 panellist generated items, the Delphi methodology process elicited consensus for 19 items that the literature also supported. This indicated that parents attaining skills and knowledge on the following factors may be of high importance during modern-day pregnancies:

1. self-care (Dion, 2005),
2. stress management (Shonkoff & Fisher, 2013),
3. the needs of fathers (Darwin et al., 2017; Deslauriers et al., 2012; Sahip & Turan, 2007; Tohotoa et al., 2012),
4. support services (Artieta-Pinedo et al., 2017; Brownell et al., 2011),
5. how a parent's thoughts and emotions may impact a prenate's growth and development (Atasever & Altun, 2017; Chamberlain, 1999d, 2013; Lazarus & Folkman, 1984; Sidebottom et al., 2017),
6. managing expectations of the daily reality of pregnancy and the time post birth (Alalshaikh, 2015; NWCPHP, 2012),
7. diet and exercise during the time of pregnancy (Borge, Aase, Brantsaeter, & Biele, 2017; Dunneram & Jeewon, 2015; Edvardsson et al., 2011),
8. how to process emotions and traumas experienced during pregnancies (George et al., 2013), and

9. signs of postnatal depression (Coley & Nichols, 2016).

The panel did not endorse expecting parents needing skills that would address conscious awareness of prenates, role-identity though the transition to parenthood, and hypnotherapy (a form of mindfulness for labour and birth). However, for each of these items research has been supportive of parents developing an understanding (e.g., Chamberlain, 1999f, 2013; Habib & Lancaster, 2006; Michaud, 2012).

**Research Question 3: What Content is Ineffective for Inclusion in PPN Parenting Programs?**

Defining what was considered as ineffective content by parents for inclusion in future PPN parenting programs, provided an opportunity to ensure that recommendations proposed reflected the present time. Nearly half of the content-based items reached consensus, and of the ones that did, there was a clear theme present that was supported by the literature. Specifically, parents did not want content to be included in PPN parenting programs that: is disempowering, judgemental, or condescending to parents (Bryson, 2013; Taylor et al., 2012); takes away choice (Malone, 2014); promotes invasion of a mother's ability to birth (Barrett et al., 2015; Billingham, 2011); or that is outdated (Bryson, 2013). It would have been useful to gain a deeper understanding of what the panellists' perceived as being "outdated parenting philosophies", as no specifics were identified. Future needs-analysis research that focusses on content for PPN parenting programs could ask this as a stand-alone question.

Interestingly, consensus was void on a series of items that have been associated with traditional medical and obstetric focus; including promotion of caesarean sections, birth being viewed as a medical procedure, immunisation, and mandated breastfeeding (e.g., Fedor-Freybergh, 2002; Lyman, 2011b). This trend in non-consensus items seemed to support the aforementioned inclination for programs to include content that supports parents' choices,

empowerment, and which focusses on the innate ability for women to birth naturally. Perhaps these non-consensus items provided a clue as to what parents perceive as being "outdated philosophies". As stated above, a direct question would need to be asked of parents in future studies.

**Research Question 4: What Factors Lead to Maintained Participant Engagement and Involvement in PPN Parenting Programs?**

According to the findings from this question, maintaining engagement and involvement by parents in sessions, requires four main areas of consideration. Each has been supported by best-practice literature on adult learning, and all have been included as recommendations for future PPN parenting programs. They were:

1. content to be individualised and personalised (Gibson, 2016), simple (Bryson, 2013), practical (Malone, 2014), relevant to daily life (Bryson, 2013; Comings et al., 2003), targeted to mothers and fathers, and be needs-based (Artieta-Pinedo et al., 2017; Bäckström et al., 2017; Gibson, 2016);
2. sessions to be fun and entertaining (Landy et al., 2012; NWCPHP, 2012; Taylor et al., 2012), experiential (Deslauriers et al., 2012; Hauck et al., 2016; Sinclair, 2013), interactive (Bryson, 2013; Gibson, 2016; NWCPHP, 2012), supportive (Deslauriers et al., 2012; Edvardsson et al., 2011), and reflective (Brixval et al., 2016; Gibson, 2016; Malone, 2014);
3. facilitators to be engaging, confident, and enthusiastic (NWCPHP, 2012); emotionally connected (Bryson, 2013); non-judgmental (Bryson, 2013; Taylor et al., 2012); interested in the material (NWCPHP, 2012); and non-condescending in their approach (Bryson, 2013).
4. learning environments to feel like a community (Barth, 2009), be social (Taylor et al., 2012; Walsh et al., 2014), and allow for frequent breaks (NWCPHP, 2012).

**Research Question 5: What Factors May Contribute to Fathers/Partners Attending less Pregnancy and Parenting Related Sessions/Programs than Expecting Mothers?**

Whilst there were many more items that did not reach consensus than did, the consensus results were consistent with what the related literature has reported. More specifically, aspects such as work schedules (Humphries & Nolan, 2015), general lack of understanding of the importance of the role of the father (National Nursing Research Unit, 2013; Salzmann-Erikson & Eriksson, 2013; Sheriff & Hall, 2011; Shribman & Billingham, 2008), and perception that pregnancy and birthing is the mother's role (Davis et al., 2016) were prominent blocks to fathers attending less sessions and programs than expecting mothers. An opportunity exists for further research to be conducted on how to design PPN parenting programs that meaningfully break down these barriers, as well as offer real solutions to including fathers during the time of pregnancy, and beyond.

Several of the non-consensus item results were inconsistent with previous research findings. Examples included:

1. fathers feeling left out and as though they do not belong when they attended classes (Edvardsson et al., 2011);
2. content not being relevant or helpful to fathers, leading to their disengagement (Davis et al., 2016);
3. PPN parenting program facilitators perceiving that fathers have a general lack of interest in program sessions (Humphries & Nolan, 2015; Sheriff & Hall, 2011; Shribman & Billingham, 2008);
4. fathers not directly feeling a pregnancy, leading to less connection with role of being a father (Habib & Lancaster, 2006); and
5. poor paternal leave policies placing less importance on fathers (Axness & Strauss, 2007; Bond et al., 2005; Jongen et al., 2014).

**Research Question 6: What Logistical and Program Delivery-Related Factors are Most Effective When Considering PPN Parenting Programs?**

Based on the literature relating to adult education and PPN parenting programs, eight key sub-research questions were developed to enable thorough recommendations for future programs. Each is addressed separately below.

**a. Which groups of parents may benefit from having access to PPN parenting programs?** Of the nine items rated relating to groups of parents, six were identified from the literature (Baytop, 2006; Coley & Nichols, 2016; Feinberg et al., 2015; Mortensen et al., 2012; Neuhauser et al., 2007; Plantin et al., 2011; Renzaho & Oldroyd, 2014). All but one, "existing parents who are pregnant again", reached consensus with the panellists. Further, with panellists identifying additional categories that included: "parents wanting to home birth", "have a vaginal birth after a previous caesarean section", and "any parent who is expecting and wants to attend a program", this suggested a perceived need for parents, regardless of cohort type, to attend PPN parenting programs (e.g., "first-time parents", "teens", "singles", "same-sex", "disadvantages/minority groups" such as ethnic minority). Whilst the item "existing parents who are pregnant again" was non-consensual, the fact that the item "any parent who is expecting and wants to attend" achieved 100% consensus nullified the previous result.

**b. Who should attend the sessions of PPN parenting programs?** This question related directly to mothers and fathers per se, regardless of cohort type identified in the previous question (e.g., "singles", "first-time parents"). The inclusion of both mothers and fathers in PPN parenting programs is well regarded (e.g., Adamsons, 2013; Arcus, 1995; Billingham, 2011; Feinberg et al., 2015; Halford & Petch, 2010; Pinquart & Teubert, 2010). The panellists were in agreement with this. An interesting finding was that panellists agreed that some sessions should be dedicated to fathers-only, but this did not extend to some

sessions for mothers-only. This was inconsistent with the literature that advocated needs-based sessions exclusively for mothers and others exclusively for fathers. Examples of mother-only topics included nutrition, risk factors, breastfeeding (Jongen et al., 2014), health promotion, and support within a relationship (Renzaho & Oldroyd, 2014). Father-only examples were men's health during a pregnancy (Davis et al., 2016), how to support the expecting mother (Deslauriers et al., 2012), and role identity as a father (Tohotoa et al., 2012; Walsh et al., 2014).

One explanation for the inconsistency between the current study's findings and the literature, may be as it is commonly recognised that programs are already targeted towards expecting mothers (e.g., Plantin et al., 2011; Robling et al., 2016), having separate sessions dedicated to them may have seemed unnecessary to the panellists.

**c. What stage of a pregnancy is most effective for PPN parenting programs to start and end?** Defining clear parameters for the best timing for parents to begin and end PPN parenting programs proved futile, and is not an unexpected as the literature to-date was also inconclusive.

In the context of the best time to begin a program, the panellists' views ranged from "preconception", "trimester one", "trimester two", "trimester three" to "after the first ultrasound", and "whenever the parent/s feel ready to begin". Consensus was achieved for "trimester two" and "whenever parents are ready". The findings in the literature captured the time-frames of preconception (Pinquart & Teubert, 2010), trimester one (Edvardsson et al., 2011; Godin et al., 2015), trimester two (Dunneram & Jeewon, 2015; Feinberg et al., 2015), trimester three (Jaddoe, 2009), and post birth (Tohotoa et al., 2012). No evidence-based research was found for "whenever parents are ready". In Chapter 2's discussion of the history of PPN parenting programs, it was acknowledged that whilst trimester one seems to be critical for healthy development of prenates, thus making it an effective time for parents to

begin a program (AIHW, 2014; Godin et al., 2015), the motivation to learn about topics such as labour, birth, and breastfeeding may not be perceived as a priority so early into the pregnancy (Godin et al., 2015). In terms of making a solid recommendation for start time of PPN parenting programs during a pregnancy, Study 3 did not add clarity. It may be that flexibility is the key until an evidence-base is generated via studies that compare the effectiveness of programs depending on start-time.

Clarity was not achieved when most effective end time for PPN parenting programs was investigated. When compared, results from the current study and related literature offered mixed recommendations for the post-birth time-frame, that included two months post birth (Jongen et al., 2014), six months post birth (Trillingsgaard et al., 2012), 12 months post birth (Brownell et al., 2011), and two years post birth (Ferguson & Vanderpool, 2013; Hussaini et al., 2011). This again suggested (as with most effective start time for PPN parenting programs) the need for flexibility— ensuring timing is determined based on the needs of parents.

**d. How can information in PPN parenting programs be most effectively presented/delivered?** Nine of the 13 items generated within this question were derived from the literature, and panellists' views were consistent with the research on all but three items. Whilst non-consensus was reached for "lecture style", "manual based", and "standardised one-size-fits-all model", the trend of responses was for disagreement that these modes of information delivery for PPN parenting programs are effective. Landy et al.'s (2012) study involved facilitators presenting information of a home-visit program to 18 expecting mothers, beginning in the third trimester and ending 12 months post birth. Landy et al. (2012) supported the non-use of lecture style instead advocated for delivery style that was interactive, experiential-based, and that included use two-way discussion between participants and facilitators throughout the home-visits.

Parent panellists from within the current study and the literature supported that PPN parenting programs ought to be presented/delivered in a way where there is a combination of styles. Examples included: (a) experiential-focussed (Dion, 2005; Dunneram & Jeewon, 2015; Ferguson & Vanderpool, 2013; Lotrecchiano et al., 2013); (b) individualised sessions that have a mix of core content and optional content modules. In each module, information was favoured to be presented using an array of formats (e.g., video, activities, printed up-to-date resources, self-reading, and practice of skills (Arcus, 1995; Artieta-Pinedo et al., 2017; Halford & Petch, 2010; Neuhauser et al., 2007); and (c) sessions incorporating question and answer time with feedback provided by the facilitator (Ayiasi et al., 2013; Ferguson & Vanderpool, 2013; Halford, 2004; Halford & Petch, 2010). The items attaining consensus were included in the recommendations for future PPN parenting programs.

**e. What is the most effective location/platform for delivery of PPN parenting programs?** Little clarity was gained from the panel for the 15 items included in this question. The existing research advocated for locations such as: (a) hospital settings (Bayop, 2008; Coley & Nichols, 2016; Tohotoa et al., 2012), (b) home visits (Castillo et al., 2011; Ferguson & Vanderpool, 2013; Jongen et al., 2014; Landy et al., 2012), (c) training room environments (Deslauriers et al., 2012; Robbers, 2009), (d) online (Cunningham et al., 2017; Gazmararian et al., 2014; Godin et al., 2015; Halford, 2004; Quirk et al., 2014), (e) within workplaces so fathers can attend (Robbers, 2009; Sahip & Turan, 2007), (f) self-guided home-based where parents complete the program on their own in their home (Halford, 2004; Petch et al., 2012), and (g) community centres (Raikes et al., 2005).

Panellists remained polarised on all items with the exception of "group sessions in a hospital setting" and as shown above, this was supported by research. A further explanation for this may be that as the vast majority of births in USA, 98.5% in 2015 (Martin, Brady, Osterman, Driscoll, & Mathews, 2017), and Australia, 98% in 2014 (AIHW, 2014) occur in

hospitals, parents may be more familiar with PPN parenting program offerings provided by the hospital they have chosen to birth at, than other options that may be available elsewhere. More specifically, 86.2% of the parent panel involved in Study 3 were from Australia. Australian statistics showed that 99.9% of women who birthed in 2014, attended at least one hospital-based PPN parenting session, and 95% attended five or more hospital-based sessions (AIHW, 2014).

The high rates of hospital births and attendance to hospital associated PPN parenting sessions, combined with non-consensus on 14 other items detailing locations for PPN programs, provides an opportunity to increase awareness amongst parent cohorts of alternative services that offer PPN parenting programs (outside of hospital locations). The current Delphi methodology study did not measure panellists' satisfaction of PPN parenting programs attended that were hospital-based. Doing so may be an important next step to determine the potential effectiveness of programs on offer, outside of the hospital environment.

**f. Who ought to deliver PPN parenting programs?** A wide variety of facilitator types for PPN parenting programs were identified, where consensus was attained. Both panellists and current literature endorsed midwives (Dunneram & Jeewon, 2015; Jongen et al., 2014; Kearney, Kynn, Craswell, & Reed, 2017; Nolan, 2017; Titaley et al., 2010; Tohotoa et al., 2012); childbirth educators (Coley & Nichols, 2016); nurses (Ayiasi et al., 2013; Baytop, 2006); a collaboration of qualified individuals (Feinberg et al., 2015; Nolan, 2017; Robbers, 2009); and qualified people who are caring, non-judgemental, confident, engaging, approachable, and skilled (Landy et al., 2012).

Panellists agreed that "academic researchers" should not facilitate programs, however no research was found that specifically discussed this. There were discrepancies between panellist responses and the literature for "male midwives and nurses delivering sessions for

fathers" (Deslauriers et al., 2012; Tohotoa et al., 2012), and for "elders from the community" (Jongen et al., 2014) facilitating programs. In both instances, the research supported these facilitator cohorts, where the parent panel did not. As discussed in Chapter 3, and in research question 5 above, given that the inclusion and focus of fathers in PPN parenting programs is still developing as a norm, it was not surprising that consensus was not attained on the inclusion of qualified males as primary facilitators. Further, as reviewed in Chapter 2, PPN parenting skills being transmuted via elders passing down information through the generations, was a trend in the 1300s to 1800s (Lewis-Rowley et al., 1993), and is outdated. As a result, it was not unexpected that the panel did not agree with this item in the current study.

**g. What is the most effective length of each session and time between each session in PPN parenting programs?** No agreement-consensus was reached for most effective length of individual sessions in PPN parenting programs. For the topic of "time between sessions", consensus was achieved on two items for what is not favourable; "five weeks" and "three months". The lack of standardisation across both topics related to time was consistent with the related research.

Length of individual sessions reported on in the literature, varied between one hour (Halford & Petch, 2010; Tohotoa et al., 2012), two hours (Carmody & Baer, 2009; Collins & Fetsch, 2012; Halford & Petch, 2010; Jaddoe, 2009), three hours (Cowan & Cowan, 1995; Sahip & Turan, 2007; Trillingsgaard et al., 2012), and four hours (Bayop, 2006).

When the time between sessions was explored, a myriad of options were revealed, including two weeks (Akinbami et al., 2001; Cowan & Cowan, 1995; Landy et al., 2012), two months (Bayop, 2006), and three months (Cowan & Cowan, 1995).

Even though seven items were identified by the panel for both session length (e.g., "one hour", "two hours", "half day", "no set time"), and for time between each session (e.g.,

"one week", "three weeks", "five weeks", "one month", "three months"), the lack of differentiation indicated that these factors were not of primary importance for parents when choosing which PPN parenting programs to attend.

As consensus was attained for some of the items that related to *content*, *delivery type*, and *quality of the facilitator*, it can be hypothesised that these factors may be more accurate criteria by which parents rate effectiveness of PPN parenting programs. Future research could ask parents a direct question relating to decision-making criteria when selecting PPN parenting programs.

**h. What is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?** As with all previous research questions relating to time aspects of effective PPN parenting programs, results concerning overall program length were also polarised both from the panel and within the literature. Of the 15 items identified by the panellists (e.g., "several days", "conception through until post birth", "trimester one until 12 months post birth", "no set time— needs-based"), none were met with unanimity. Options in the research included: eight weeks (Cowan & Cowan, 1995), nine months, spanning the three trimesters of gestation (Zwelling, 1994), trimester three until three months post birth (Cowan & Cowan, 1995), preconception until six months post birth (Feinberg et al., 2015), trimester three until two years post birth (Landy et al., 2012), and trimester one until 18 months post birth (Edvardsson et al., 2011). The lack of clarity suggested that overall length of a program may not be a factor that expecting mothers and fathers consider when rating effectiveness of PPN parenting programs.

**Limitations**

There were numerous notable limitations from Study 3. Firstly, it was not clear as to the consistency in level of content knowledge that the parent panellists had regarding the PPN parenting sessions they had attended. Two factors identified in the demographic questions

(and detailed in Table 3) in round 1 may have contributed to this. They were participating parents attending a wide array of PPN parenting initiatives (nine types were identified), with differing numbers of sessions (11 options were presented), and lengths of programs (12 variations existed). Experiences were not equal, and the range of years for which panellists attended PPN parenting sessions was between 1986 and 2016. It is therefore likely that content type would have changed across the years, and that memory of the details of what was included in any program attended may have diluted across time. As a consequence, it is possible that individuals were not able to identify the most relevant and timely suggestions for PPN parenting programs for the 21st century. This was reflected in the fact that 109 items from the 235 items did not attain consensus. If this study was to be repeated, it is recommended that narrower and clearer parameters be set with regards to type of PPN parenting program attended, and how recently programs were engaged in by panellists (e.g., "within five years"). This may enable greater confidence in the homogeneity of expertise of panellist members, as well as in the reliability of findings.

Secondly, whilst consensus was found for 126 items across the three rounds, this does not mean that the most accurate responses were found (Dawson et al., 2015; Hasson et al., 2000). The findings were limited to what the expert panellists involved in the current study perceived as [un]important in relation to future PPN parenting programs. Further, it may be the experts who chose not to be a part of the study had differing views than the participating panellists, which may have compromised how representative the views of the panel were in comparison to other expert parents (Keeney et al., 2006; Ward et al., 2014). This sampling-related limitation was somewhat mitigated by comparison data from the literature being considered when reporting on factors to be considered when designing, developing, and delivering future PPN parenting programs.

Thirdly, representativeness of the sample was not assured, as panellists were not randomly selected. That said this approach was aligned with the intention to recruit experts and is common practice in studies that use Delphi methodology (e.g., Dawson et al., 2015; Hasson et al., 2000; Ward et al., 2014). Further, the total sample was from the USA and Australia, even though advertising for participation was on global social media. It remains unknown as to whether the results found would be applicable for parents from other first-world countries or from developing countries. This limitation was shown to be similar in other Delphi methodology studies (e.g., Desroches et al., 2015; Phillips et al., 2014).

Fourthly, as no gold standard for most appropriate percentage level for consensus had been agreed upon in the literature, the commonly cited 75% (e.g., Dawson et al., 2015; Hejblum et al., 2014; Keeney et al., 2006) was selected as the *a priori* level. As is apparent from Appendix K, 109 items did not meet the criteria for consensus. If a lower consensus threshold, still within the bounds of what the literature supports, was utilised, the results would have reflected a greater yield of perceived agreement. This highlighted a lack of robustness in findings, and that results may be malleable depending upon the criteria a researcher selects.

Despite these limitations, the findings from the expert parent Delphi methodology study provided a deeper understanding of some factors perceived to be effective for 21st century PPN parenting programs. To further appreciate what may be effective, and to broaden generalisability of findings, an additional Delphi methodology study was undertaken in the current dissertation. Specifically, the expert opinions of birth professionals were sought. This formulated Study 4 and is discussed in the next chapter.

**Recommendations**

The key recommendations from the expert parent panel of Study 3 were included in Appendix L. Items displayed were not intended to be in any particular order of importance and have been presented with simple and logical headings for ease of interpretation.

**Future Research**

Based on the limitations identified, the current study could be replicated utilising another panel of expert parents, and the questionnaire used could be amended. It is recommended that in future panellists be asked directly about:

1. what they consider outdated parenting philosophies to be. This would lead to content being included in future PPN parenting programs that is aligned with up-to-date trends, theories, and philosophies. Further, topics that are perceived to be outdated could be removed from existing programs and not replicated in new programs.
2. the ways that PPN parenting programs and facilitators can: meaningfully include fathers in sessions, design and deliver content that meets the needs of 21st century fathers, and examine what strategies and solutions need to be in place to overcome existing barriers that negatively impact fathers' attendance currently.
3. levels of satisfaction with hospital-based PPN parenting programs; including what specific factors contributed to [did]satisfaction.
4. what decision-making criteria parents consider when selecting which PPN parenting programs to attend.

**Next Chapter**

A fourth and final study was undertaken using Delphi methodology and involved a panel of birth professionals who met expert criteria. The next chapter is devoted to discussing only the methodology, results, and associated recommendations from the panel of birth professionals. The existing literature and information presented in Study 3, on factors that

constitute effective adult learning, adult learning components in the context of PPN parenting programs, and the Delphi methodology will not be repeated.

A detailed comparison of findings between the parent and birth professional expert groups is provided in Chapter 9, along with a consolidated list of recommendations for future PPN parenting programs.

# Chapter 8: Delphi Expert Birth Professional Study—Factors Needed for Future PPN Parenting Programs

## Study 4 Rationale

Study 4 was a duplicate of Study 3 in that the Delphi methodology was utilised. The intention of Study 4 was to capture the perspectives of birth professionals on factors that may be most effective for inclusion in the design, development, and delivery of future PPN parenting programs.

The literature review presented in the previous chapter for Study 3 that focussed on adult learning, adult learning in the PPN parenting context, and on the Delphi methodology, directly relates to Study 4, and has not been repeated here. Only the unique aspects relating to the methodology for the expert birth professional panellists, results, and recommendations identified from the data in Study 4, are discussed in this chapter.

## Study 4 Aims and Research Questions

As with Study 3, an exploratory three-round Delphi expert consensus study was utilised in Study 4. A group of birth professionals, who met inclusion criteria and agreed to participate, formed the expert panel for the study. Panellists' perspectives and beliefs were captured to broaden the level of understanding beyond the parent views identified in Study 3, as well as the literature-base on factors perceived to be most effective when considering PPN parenting programs. Consistent with Study 3, aspects where a lack of clear consensus on best-practice exists were examined, and included: (a) factors that may impact both the development of prenates and influence who babies become, that expecting parents would benefit from learning about; (b) content that is perceived as being most effective for inclusion for pregnancy and post birth parenting; and (c) target participant cohorts, delivery styles and methods, facilitator expertise and skills, program design, and appropriate timing of individual sessions and programs overall.

The questions in the online questionnaire for Study 4 were identical to Study 3, with one exception. The question "What are the best ways pre- and perinatal parenting programs and/or facilitators of programs could maintain your level of engagement and involvement as a parent once a program has started?" was not relevant to ask of the birth professional group. It was replaced with "What current practices and/or theories that relate to conception, pregnancy, birth, and post birth do you believe would be of value to educate pregnant couples on?" This change is reflected in the research questions for Study 4.

Six research questions were formulated from the literature and included:

1. What factors may impact both the development of prenates during gestation and influence who babies become post birth, that expecting parents would benefit from learning about?
2. What content is effective for inclusion in future PPN parenting programs?
3. What content is ineffective for inclusion in future PPN parenting programs?
4. What current practices and/or theories relating to conception, pregnancy, birth, and post birth are of value to include in future PPN parenting programs?
5. What factors may contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?
6. What logistical and program delivery-related factors are most effective when considering PPN parenting programs? This research question had eight sub-research questions:
    a. Which groups of parents may benefit from having access?
    b. Who should attend the sessions?
    c. What stage of a pregnancy is most effective for PPN parenting programs to both start and end?

d. How can information in PPN parenting programs most effectively be presented/delivered?
e. What is the most effective location/platform for delivery?
f. Who ought to deliver PPN parenting programs?
g. What is the most effective length of each session and time between each session?
h. What is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?

In alignment with Study 3, the aim of Study 4 was to gain consensus on factors that may lead to effective PPN parenting programs for the 21st century, thus extending current literature on best-practice. Additionally, the intention of the current study was to develop a comprehensive list of recommendations for future PPN parenting programs (see Appendix W) that were a culmination of: (a) the results obtained from the birth professional panellists, (b) the existing research findings, (c) the outcomes from Studies 1 and 2, and (d) the expert opinions of parents from Study 3.

## Method

Ethical approval was granted by BUHREC—Application ID 15851 (see Appendix M). Data was gathered between November 2016 and February 2017.

### Expert Panellists and Recruitment

Criteria for inclusion as a birth professional in Study 4 encompassed being either an OB/GYN, midwife, doula, Registered Nurse (RN) specialising in pregnancy and birth, therapist, Marriage and Family Therapist (MFT), psychologist, coach (with PPN expertise and/or working with couples or families), or childbirth educator; who was certified/licensed at the time of completing the study, and had been active in the field for at least five years.

Recruitment for participation occurred using three strategies that included: (a) promoting participation via Facebook, both on the student researcher's personal page and on

the Association for Prenatal and Perinatal Psychology and Health's page (see Appendix N for recruitment advertisement); (b) using the snowball technique where a request was made on Facebook to share the invitation to participate with birth professionals who may meet the expert criteria; and (c) direct email to 23 people in the student researcher's PPN contacts, asking for the invitation to participate be shared amongst any known professionals in the recipients' networks.

In all instances where email contact was made with the student researcher in response to a recruitment request, a return email (see Appendix O) was sent outlining the requirements for involvement in all rounds of the study, and asking the person to be a part of the study if the full inclusion criteria were met. Similarly, for people who made contact via Facebook Messenger, a request for an email address was made by the student researcher so the email detailing the study could be forwarded (see Appendix O).

In total, 105 people responded to the invitation to participate. All were emailed the details of the study and included the study's aims, inclusion criteria, study length, time commitments for each round, ethics approval details, details about the student researcher and supervisor, confidentiality, ability to withdraw without penalty, and notification of a fifty dollar online gift voucher (e.g., Amazon, Coles-Myer) upon finishing each of the three rounds of the study. After receiving the comprehensive details, 40 experts (38.10%) agreed, via email, to begin the study. Of those, two people stated they had been referred via the snowball technique. An email was sent with details relating specifically to round 1 procedure and expectations, along with a link to the questionnaire on Qualtrics Research Suite (see Appendix O).

As with Study 3, the study design was quasi-anonymous, as each panellist's name and email address was known to the student researcher only. The purpose being that the

results and questionnaire links to subsequent study rounds could be sent to each individual expert. Confidentiality was maintained at all times.

**Materials**

An online questionnaire was created for each of the three rounds of the study and each was made available on the online survey program, Qualtrics Research Suite. See Appendices P, Q, and R for the three separate questionnaires.

**Procedure**

The procedural process undertaken for Study 4 was the same as that used in Study 3 and encapsulated five sub-categories that included: (a) devising the round 1 questionnaire; (b) procedural overview; (c) consensus criteria used across the three rounds; (d) analysis procedure used across the three rounds; and (e) brief procedural outline for rounds 1, 2, and 3.

As the same Delphi methodology procedure from Study 3 was followed, only specific aspects that related to Study 4 uniquely are discussed under the relevant sub-categories below. To review the full procedure, refer to Chapter 7 (pp. 176-185).

**Devising the round 1 questionnaire.** This sub-category was identical to Study 3 (refer to Chapter 7, p. 176).

**Procedural overview.** This overview is identical as for Study 3, with the exception that the panel members included were expert birth professionals as opposed to parents (see Chapter 7, p. 179).

**Consensus criteria used across the three rounds.** This sub-category is 100% consistent with Study 3 (see Chapter 7, p. 180).

**Analysis procedure used across the three rounds.** The discussion under this sub-category also matched Study 3 (see Chapter 7, pp. 180-185). A visual representation of the Delphi methodology followed for Study 4 can be seen in Figure 2, below.

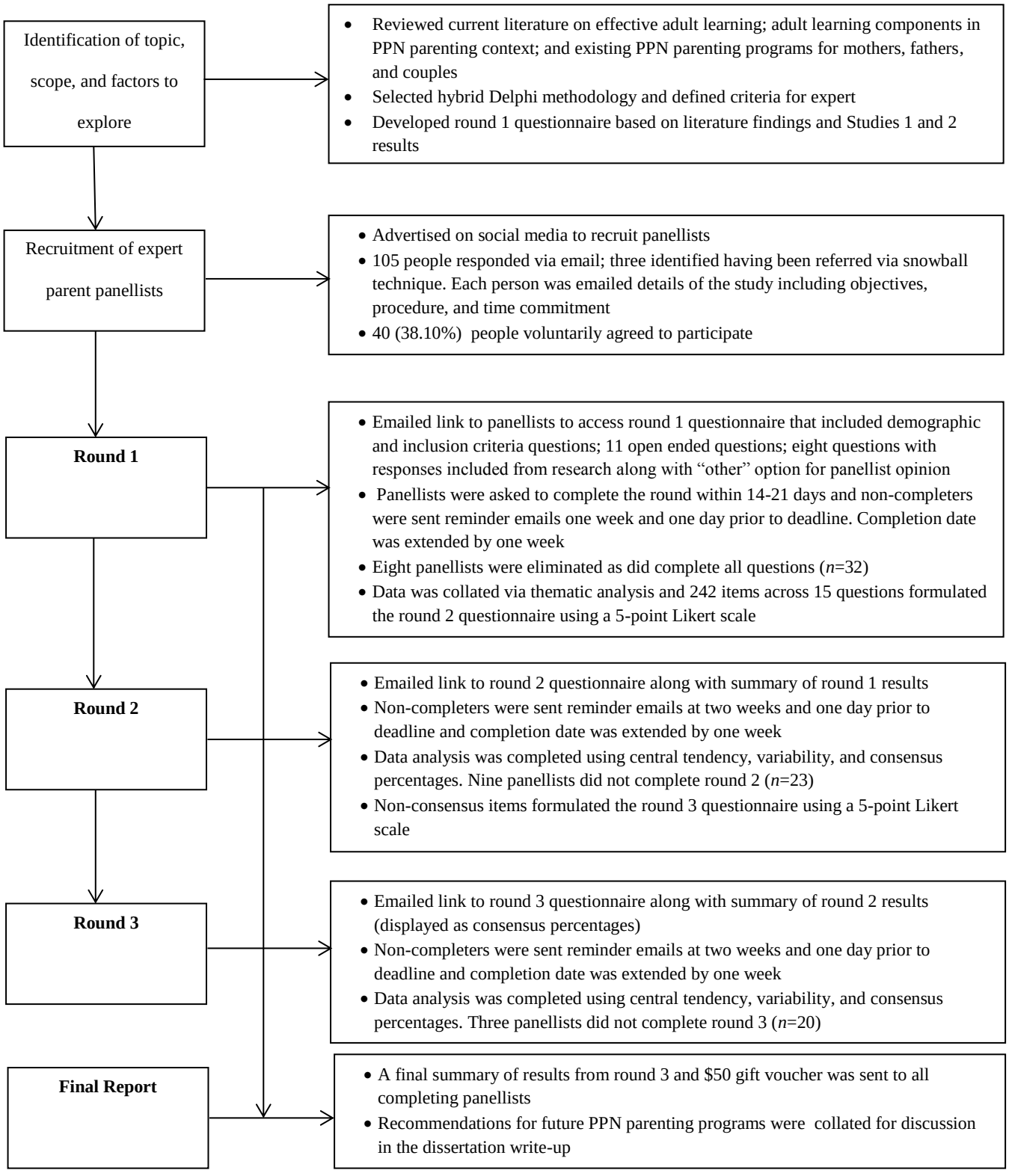


*Figure 2*: Visual representation of Delphi methodology for Study 4

**Round 1.** As discussed in Study 3, pilot testing a round 1 questionnaire is a recommended procedural step for Delphi methodology (Hasson et al., 2000; Iqbal & Pipon-

Young, 2009; Jenkins & Smith, 1994). This step was completed with a sample of three people who met the inclusion criteria as an expert birth professional, and did not participate as a panellist in the study. Based on feedback received, minor alterations to wording and grammar were made (e.g., related to tense and referring to respondents in first-person).

The intention of round 1 was to collect qualitative data on (a) factors that may impact both the development of prenates during gestation and influence who babies become post birth; and (b) the opinions of birth professionals as to what was considered to be the most important inclusions in the design and content features for modern-day PPN parenting programs. Informed consent was ascertained via a *yes* response provided by panellists after reading the explanatory statement (refer to Appendix P).

Demographic information collected included age, gender, nationality, country of residence, marital status, number of children, and education level. Two inclusion criteria questions were asked:

1. "Please indicate which of the following role/s you fulfil"—OB/GYN, midwife, doula, RN (specialising in pregnancy and birth), therapist, MFT, psychologist, coach (with PPN expertise and/or you work with couples or families), childbirth educator; and
2. "Please indicate the total number of years active in your specified role/s".

As discussed in Chapter 7 for Study 3, a hybrid version of the Delphi methodology (Hasson et al., 2000; Jenkins & Smith, 1994) was utilised. Specifically, panellists were provided with open-ended questions as well as questions derived from relevant PPN parenting program literature.

Birth professional panellists responded to 19 questions that comprised: (a) one Likert scale rating question "When considering factors that may impact both the development of prenates during gestation and influence who babies become post birth, for each of the following, please indicate your level of agreement". Panellists were required to rate their

level of [dis]agreement utilising the 5-point Likert scale where 1=*strongly agree*, 2=*agree*, 3=*neutral*, 4=*disagree*, and 5=*strongly disagree*; (b) 11 open-ended questions; and (c) seven questions that had a combination of checkbox options as well as an "other" option with a comment box to capture original ideas (see Appendix P). No items were eliminated between round 1 and round 2 if it was not checked; rather the items were converted to a 5-point Likert scale for determining level of [dis]agreement.

As previously stated, when compared to Study 3, all questions were identical with one exception. The following question used in Study 3 was eliminated from Study 4 as it did not relate to the birth professional panellist group: "What are the best ways pre- and perinatal parenting programs and/or facilitators of programs could maintain your level of engagement and involvement as a parent once a program has started?" Instead the following question was included: "To ensure new prenatal parenting programs are relevant and up-to-date, what current practices and/or theories that relate to conception, pregnancy, birth, and post birth do you believe would be of value to educate pregnant couples on?"

Each question from round 1 produced items that were incorporated into rounds 2 and 3, where panellists qualitatively rated each item using the Likert scale identified above. The final question in round 1 enabled panellists to identify general comments about the study.

**Rounds 2 and 3.** The details relating to rounds 2 and 3 from a procedural perspective were identical to that outlined for Study 3 and can be seen in Chapter 7 (pp. 184-185).

## Results

A total of 40 panellists, who self-identified as meeting the inclusion criteria as expert birth professionals, participated in round 1 of Study 4. Of the 40, eight panellists did not fully complete the questionnaire by the timeframe provided, despite two follow-up emails prompting participation and extending the deadline by one week. No clarifying feedback was provided by the non-completers as to why. As a consequence, their data was removed from

analysis for round 1 and the eight panellists were not included in any further rounds. Each person was informed of their exclusion via email. Data analysis in round 1 was based on a panellist group of 32 expert birth professionals.

The panel consisted of 29 females (90.6%) and 3 males (9.4%), aged between 26 and 87 years (M=82.81; SD=15.28), from across four countries (USA=87.5%; Australia=3.1%; Canada=3.1%; Israel=3.1%). When the expert birth professional criterion was considered, the majority of panellists were PPN therapists (43.8%), followed by midwives (15.6%), and RNs who were specialists in pregnancy and birth (15.6%). One OB/GYN participated (3.1%), along with four doulas (12.5%) and three childbirth educators (9.4%). On average, panellists had been in their role for 23.09 years (SD=14.67 years), with the range being five to 54 years. Table 35 outlines all recorded demographics of the birth professional panellists.

Table 35

*Demographics of Expert Birth Professional Panellists (Study 4)*

| Variable | N | % | M (years) | SD (years) | Range (years) |
|---|---|---|---|---|---|
| Age | 32 | | 52.81 | 15.28 | 26-87 |
| Gender | 32 | | | | |
| Female | 29 | 90.6 | | | |
| Male | 3 | 9.4 | | | |
| Country live in | 32 | | | | |
| USA | 28 | 87.5 | | | |
| Australia | 1 | 3.1 | | | |
| Canada | 1 | 3.1 | | | |
| Israel | 1 | 3.1 | | | |
| Marital status | 32 | | | | |
| Living with partner | 5 | 15.6 | | | |
| Married | 16 | 50.0 | | | |
| Divorced | 5 | 15.6 | | | |
| Separated | 2 | 6.3 | | | |
| Widowed | 1 | 3.1 | | | |
| Single | 3 | 9.4 | | | |
| Education level | 32 | | | | |
| High school | 1 | 3.1 | | | |

| | | | | | |
|---|---|---|---|---|---|
| Tech/vocational college | 5 | 15.6 | | | |
| Doctoral | 7 | 21.9 | | | |
| Bachelor's degree | 7 | 21.9 | | | |
| Master's degree | 9 | 28.1 | | | |
| Other | 3 | 9.4 | | | |
| Number of children | 32 | | | | |
| 0 | 10 | 31.3 | | | |
| 1 | 5 | 15.6 | | | |
| 2 | 7 | 21.9 | | | |
| 3 | 5 | 15.6 | | | |
| 4+ | 5 | 15.6 | | | |
| Role | 32 | | | | |
| OB/GYN | 1 | 3.1 | | | |
| Midwife | 5 | 15.6 | | | |
| Doula | 4 | 12.5 | | | |
| RN (pregnancy and birth) | 5 | 15.6 | | | |
| PPN Therapist | 14 | 43.8 | | | |
| Childbirth educator | 3 | 9.4 | | | |
| Years active in role | 32 | | 23.09 | 14.67 | 5-54 |
| Currently facilitate PPN classes | 32 | | | | |
| Yes | 14 | 43.8 | | | |
| No | 18 | 56.3 | | | |

**Qualitative Analysis**

**Round 1.** In total, 19 questions were included in the round 1 questionnaire, and 18 were thematically analysed to generate items to be rated by panellists in round 2. There was one 5-point Likert-scale question included, and it was quantitatively analysed using central tendency, variability, and percentages. The individual questions from round 1 are discussed below, and the items generated for inclusion in the round 2 questionnaire can be seen in Appendix Q.

***What factors do you believe may impact both the development of prenates during gestation and influence who babies become post birth?*** This question was asked first as an open-ended question and then as a 5-point Likert scale question that included 16 items identified from the literature, as well as from Studies 1 and 2. The question was presented as

an open-ended question initially, to enable ideas to be recorded by the panellists without any bias existing in responses as a result of seeing pre-existing items. Panellists were only able to see the Likert-scale version of the question once they had responded to the open-ended version. Thematic analysis was conducted for the open-ended responses and only content categories that were dissimilar to the items included in the Likert scale were included as new items in round 2.

The open-ended question generated 23 new items for inclusion in the round 2 questionnaire. Examples included: (a) "general health of the father at time of conception"; (b) "mother's and father's perceptions of their ability to be a 'good enough' parent"; (c) "epigenetics (e.g., stress and trauma imprinting passed down through the generations and influencing a prenate's genes being turned 'on' or 'off' in response to the imprint)"; (d) "the ability of mums and dads to self-regulate their nervous systems to a calm and restful state consistently each day during the pregnancy"; (e) "ability for mum and dad to engage with each other and with their baby, from a place of secure attachment, during a pregnancy and beyond"; (f) "the level of conscious connection created intentionally between both parents and baby in- utero and post birth"; (g) "mum and dad differentiating any negative or challenging thoughts, feelings, and experiences during the pregnancy from the prenate (and baby post birth), using coherent dialogue directed towards the baby"; and (h) "love being expressed to the prenate from conception onwards".

***What content do you think is most effective regarding the needs of expecting parents when considering PPN parenting programs?*** This question was presented firstly as an open-ended question then again with checkbox items drawn from the literature. An "other" option with a corresponding comment box to capture unique ideas from each of the panellists was included. The open-ended question needed to be completed prior to the literature-derived items being made visible. This ensured the number of original ideas captured by panellists

was not influenced by being exposed to the pre-existing ideas. Of the 25 items included from the literature, all were checked by at least 11 panellists. Twenty-three new items were generated via the open-ended question and "other" comment box, and were included in the round 2 questionnaire. Examples included: (a) "stress management skills"; (b) "education on birth and care choices"; (c) "how to say 'no' and stay empowered in a birthing environment"; (d) "tools for expecting parents to heal their own birth trauma and early imprints"; (e) "mindfulness skills for developing healthy and respectful relationships with self, partner, and baby"; (f) "managing expectations of parenting (e.g., debunking perfectionism and education on being a 'good enough' parent); and (g) "education on parental impact on the developing nervous system of babies both in-utero and post birth".

***What content do you think is ineffective regarding the needs of expecting parents when considering PPN parenting programs?*** This question was presented in open-ended response format only, as learning the expert birth professionals' perceptions of content that was not useful in PPN parenting programs they had been exposed to over the course of their careers was of interest, to maximise the currency of ideas offered as future recommendations. Panellists identified 24 items and examples included: "any content that disempowers either the mother or the baby", "content that emphasises the medical model for birthing only", "content that is not contextualised for the father too", "any content area that is not presented from an evidence-base", and "any content area that has bias, judgement, and/or an agenda".

***To ensure new PPN parenting programs are relevant and up-to-date, what current practices and/or theories that relate to conception, pregnancy, birth, and post birth do you believe would be of value to educate pregnant couples on?*** This question was open-ended format and of the 77 verbatim responses, thematic analysis identified 25 stand-alone items for inclusion in round 2. Examples included: "emotional development of prenates and neonates",

"conscious conception", "PPN psychology", "midwifery model of care", "affect regulation", "trauma imprinting", and "epigenetics".

***What stage of a pregnancy do you believe is the most effective time for PPN parenting programs to start?*** This question was presented in open-ended format only, as the literature did not consistently support any best-practice start time for expecting parents to attend PPN parenting programs. Nine items were identified and examples included: "as soon as the couple discover they are pregnant", "trimester one", "trimester two", "after quickening" (when the mother perceives fetal movement), and "late teens/early adulthood—prior to any pregnancy".

***What do you believe is the most effective time for PPN parenting programs to end?*** Four items derived from literature were presented to panellists and were: "before birth", "within three months post birth", "within three to six months post birth", and "within six to 12 months post birth". An "other" category with an associated comment box was also included. All predetermined items were checked by at least three panellists, and the one additional item generated was "three years post birth".

***What do you believe is the most effective location/platform for delivery of PPN parenting programs?*** Eleven literature-derived items were included and presented as checkbox items, along with an "other" category that enabled panellists to write comments. Examples included: "in-person group sessions in a hospital setting"; "live webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions)"; "sessions delivered in the workplace"; and "sessions delivered via phone, Skype, Zoom". Each item was checked by at least six panellists, and one additional item was generated from the "other" category; "in a parent-to-parent mentoring environment".

***How do you believe information in PPN parenting programs can most effectively be presented/delivered?*** Nine items that originated from the literature were presented, and all but one was checked by at least 11 panellists (e.g., "lecture style", "use of video", "manual/workbook", and "home-practice activities to consolidate learning"). "Standardised one-size-fits-all program" was the only item not checked by any of the panellists in round 1. Whilst this result indicated a unified agreement by the panellists that a standardised approach to delivery of PPN parenting programs was not considered effective, for consistency in methodology, the item was included in the round 2 questionnaire for consensus rating using a 5-point Likert scale. The "other" category did not generate any new items for inclusion.

***Who do you believe should attend PPN parenting programs?*** As discussed in Study 3, the literature revealed that PPN parenting programs are typically designed to be presented to either mothers-only (e.g., Consonni et al., 2010; Robling et al., 2016), couples (e.g., Halford et al., 2010; Van de Carr & Lehrer, 1988), and in some instances, fathers-only (e.g., Deslauriers et al., 2012; Sahip & Turan, 2007). Based on this trend in existing PPN parenting programs, five items were predetermined and included in round 1 ("mum only", "dad only", "both mum and dad/partner", "both mum and dad/partner with some sessions for dad/partner only", and "both mum and dad/partner with some sessions for mum only"). As with the parent panellists in Study 3, none of the birth professional panellists checked either "mum only" or "dad only" in round 1. To ensure consistency throughout the study, all items were presented in round 2 for consensus rating. As with all other questions in the questionnaire that the incorporated the checkbox format for items, an "other" option was provided, and three new items were generated. They were: "siblings", "grandparents", and "extended family members who will be caregivers to the baby once born".

***Research shows that fathers/partners attend less pregnancy and parenting related sessions/programs than expecting mothers. In your opinion, what factors would contribute to that being true?*** This question was presented to panellists in open-ended format. Eighteen unique items were identified and included in round 2. Examples included: "lack of support from workplaces for fathers to takes time away from work to attend classes"; "fathers not being invited/encouraged to attend classes by their partner, service providers, or both"; "societal and cultural norms that pregnancy is women's business"; "general lack of understanding of the importance of the role of fathers in the wellbeing of growing prenates"; and "lack of current programs being facilitated by men".

***Which groups of parents do you believe may benefit from having access to PPN parenting programs?*** Six literature-derived categories of parents were presented as checkbox items and were "first-time parents", "existing parents who are pregnant again", "pregnant teens", "single parents", "disadvantaged populations", and "same-sex couples". All items were checked by at least 30 panellists. The "other" option elicited eight new items and examples included: "parents with trauma history", "parents who are adopting", "all primary support people", and "non-parents" (birth professionals and educators).

As with Study 3, an open-ended question format only was used for the following three questions, as the literature did not offer any conclusive recommendations pertaining to length of sessions, timing between sessions, and overall length of PPN parenting programs.

***What do you believe is the most effective length of each session in PPN parenting programs?*** Thirty verbatim responses were generated by the panellists, and after thematic analysis was completed, nine exclusive categories were evident. They included: "45 minutes", "one hour", "1.5 hours", "two hours", "2.5 hours", "three hours", "half day", "full day", and "no set-time—course specific".

***In your opinion, what is the most effective amount of time between each session?*** Thirty birth professional panellist responses were recorded, and of those, six distinctive items were generated through the thematic analysis process. They were: "between 1-5 days", "between 5-7 days", "one week", "between 1-2 weeks", "two weeks", and "one week for sessions held in trimester one and then more spread out up until the end of the pregnancy".

***What do you believe is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?*** Of the 31 verbatim responses generated by the panel, 15 individual items were identified as an outcome of the thematic analysis process. Examples included: "six weeks", "eight weeks", "no set time—depends on the needs of the parents"; "16 weeks", "five weeks in trimester one, and five weeks in trimester three" and "from trimester one until birth".

***In your opinion who ought to deliver PPN parenting programs?*** Nine categories of birthing professionals who commonly facilitate PPN parenting programs were identified from the literature (e.g., "midwife", "doula", "OB/GYN", "childbirth educator", "nurse"), and were included as checkbox items. Each of the nine categories were checked by at least five panellists in round 1. An "other" option was provided and seven new items emerged. Examples included: "collaboration between psychologist, midwife, and childbirth educator", "anyone with skills to coach, offer support and encouragement, be culturally sensitive, and listen", "collaboration of different community members from diverse backgrounds", and "anyone who has passion for the material and can deliver in a good way".

***What other considerations (if any) do you believe are important for PPN parenting programs to be effective?*** Whilst 27 comments were shared by the birth professional panellists, the information did not cultivate any new content items across any of the questions.

**Quantitative Analysis**

**Round 1.** The 5-point Likert-scale data was analysed using IBM SPSS Statistics 24, and included calculations of central tendency (Mean, Median) (e.g., Ward et al., 2014), variability (SD) and percentage values of consensus level for each item presented to expert birth professional panellists.

Panellists were asked to rate their level of agreement on 16 items that related to the statement "Factors that may impact both the development of prenates during gestation and influence who babies become post birth". *A priori* consensus of 75% of panellists who rated an item as either *strongly agree* or *agree* (Desroches et al., 2015; Fleuren et al., 2004; Hejblum et al., 2014) was reached for 15 of the 16 items, and all were included in recommendations for future PPN parenting programs. "Age of mother" was the one item that did not reach consensus, and was progressed to the round 2 questionnaire for re-rating. Results are presented in Table 36 below.

Table 36

*Round 1 Items Relating to "Factors That May Impact Both the Development of Prenates during Gestation and Influence Who Babies Become Post Birth" (Study 4; n=32)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Maternal diet ** | 1.22 | 1.00 | 0.49 | 96.9* |
| Nutritional supplements ** | 1.72 | 2.00 | 0.77 | 81.3* |
| Substances (e.g., alcohol, nicotine, pesticides) ** | 1.13 | 1.00 | 0.34 | 100* |
| DNA ** | 1.47 | 1.00 | 0.57 | 96.9* |
| Mother-prenate relationship in the womb (e.g., degree of being wanted, interaction between mum and prenate throughout the pregnancy) ** | 1.19 | 1.00 | 0.47 | 96.9* |
| Father-prenate relationship in the womb (e.g., degree of being | | | | |

| | | | | |
|---|---|---|---|---|
| wanted, interaction between dad and prenate throughout the pregnancy) ** | 1.41 | 1.00 | 0.67 | 90.7* |
| Life stress experienced by mum and dad at time of conception and during the pregnancy ** | 1.19 | 1.00 | 0.40 | 100* |
| Level of physical activity for general health of mum during the pregnancy ** | 1.72 | 2.00 | 0.63 | 90.6* |
| Maternal and paternal family history of health issues and diseases ** | 1.66 | 2.00 | 0.70 | 87.5* |
| Age of mother ** | 2.38 | 2.00 | 0.79 | 62.5 |
| Maternal stress, anxiety, and/or depression ** | 1.13 | 1.00 | 0.34 | 100* |
| Paternal stress, anxiety, and/or depression ** | 1.41 | 1.00 | 0.56 | 96.9* |
| Mother's and father's perceptions (thoughts, attitudes, feelings, beliefs, both positive or negative) of each other, events, and environment experienced during pregnancy ** | 1.19 | 1.00 | 0.47 | 96.9* |
| Quality of relationship between the mother and father at time of conception and during the pregnancy ** | 1.34 | 1.00 | 0.70 | 93.8* |
| Maternal abuse (mental, physical, emotional) ** | 1.09 | 1.00 | 0.29 | 100* |
| General health of mother at time of conception and during the pregnancy (e.g., weight, blood pressure) ** | 1.34 | 1.00 | 0.48 | 100* |

* Consensus was reached
** Item originated from the literature

**Quantitative Analysis**

**Round 2.** Of the 32 panellists from round 1, 71.88% completed round 2 (*n*=23). Whilst this indicated an attrition rate of 28.12%, this was still within the acceptable limit of less than 30% (Sumsion, 1998). The round 2 panel comprised of three males (13%) and 20 females (87%). Of the 15 questions where feedback was provided, 242 items in total were generated in round 1. Each of these items were presented in round 2 (refer to Appendix Q for the round 2 questionnaire) for the panellists to rate their level of [dis]agreement with each item. Central tendency (Mean and Median), variability (SD) and percentage delineating consensus (or lack of) are displayed, by question, in Tables 37 to 51. A brief outline of results is provided by question below.

***What factors may impact both the development of prenates during gestation and influence who babies become post birth?*** Of the 24 items presented, consensus was reached by the panellists on 21 items (69.23%). The three items that did not attain consensus were forwarded to round 3 for the panel to re-rate.

Table 37

*Round 2 Items Relating to "Factors That May Impact Both the Development of Prenates during Gestation and Influence Who Babies Become Post Birth" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Age of mother ** | 2.35 | 2.00 | 0.78 | 56.5 |
| General health of the father at time of conception | 2.09 | 2.00 | 0.90 | 87.0* |
| Social support available to the mother during pregnancy and beyond | 1.26 | 1.00 | 0.45 | 100* |
| Social support available to the dad during the pregnancy and beyond | 1.74 | 2.00 | 0.62 | 91.3* |
| Mother's and father's perception of their ability to | | | | |

| | | | | |
|---|---|---|---|---|
| be a ‘good enough’ parent | 1.57 | 2.00 | 0.59 | 95.7* |
| Epigenetics (e.g., stress and trauma imprinting passed down through the generations and influencing a prenate’s genes being turned ‘on’ or ‘off’ in response to the imprint) | 1.35 | 1.00 | 0.49 | 100* |
| Unprocessed attachment and relational trauma of the mum | 1.17 | 1.00 | 0.39 | 100* |
| Mum’s ability to self-regulate her nervous system to a calm and restful state consistently each day during the pregnancy | 1.26 | 1.00 | 0.45 | 100* |
| Dad’s ability to self-regulate his nervous system to a calm and restful state consistently each day during the pregnancy | 1.96 | 2.00 | 0.83 | 78.3* |
| Mum’s perception of her ability to grow, birth, and parent her baby | 1.35 | 1.00 | 0.49 | 100* |
| Ultrasound exposure | 2.52 | 3.00 | 1.28 | 47.8 |
| Ability for mum and dad to engage with each other and with the baby from a place of secure attachment during the pregnancy and beyond | 1.30 | 1.00 | 0.47 | 100* |
| Sibling attitude about the pregnancy | 2.26 | 2.00 | 0.86 | 65.2 |
| Quality of the birthing experience for mum, dad, and baby | 1.48 | 1.00 | 0.79 | 91.3* |
| The level of conscious connection created intentionally between both parents and baby in-utero and post birth | 1.30 | 1.00 | 0.56 | 95.7* |

| | | | | |
|---|---|---|---|---|
| Mum's and dad's ability to heal unresolved issues from their own womb, birth, and childhood experiences; how they were parented; and from any previous pregnancy losses | 1.30 | 1.00 | 0.77 | 91.3* |
| Whether the prenate's gender is wanted by one or both of the parents | 1.65 | 1.00 | 0.78 | 82.6* |
| Love being expressed to the prenate from conception onwards | 1.30 | 1.00 | 0.47 | 100* |
| Mum and dad differentiating any negative/challenging thoughts, feelings, and experiences during the pregnancy from the prenate (and baby post birth) using coherent dialogue directed towards the baby | 1.65 | 1.00 | 0.94 | 91.3* |
| Preconception dynamics between mum and dad | 1.78 | 2.00 | 0.95 | 82.6* |
| A mum's level of self-care during pregnancy and post birth | 1.13 | 1.00 | 0.34 | 100* |
| IVF process to conceive | 1.91 | 2.00 | 0.99 | 78.3* |
| Unprocessed trauma of mum and/or dad relating specifically to sexual abuse | 1.39 | 1.00 | 0.50 | 100* |
| Unprocessed attachment and relational trauma of the dad | 1.70 | 1.00 | 0.88 | 82.6* |

* Consensus was reached
** Item originated from the literature

***What content do you think is most effective regarding the needs of expecting parents when considering PPN parenting programs?*** Of the 48 items presented for rating, 41 reached consensus (85.42%). The seven non-consensus items were included in round 3.

Table 38

*Round 2 Items Relating to "Content Perceived to be Most Effective Regarding the Needs of Expecting Parents When Considering PPN Parenting Programs" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Healthy and adaptive coping skills for the changes parenthood brings ** | 1.17 | 1.00 | 0.39 | 100* |
| Education on natural and drug free births ** | 1.52 | 1.00 | 0.79 | 82.6* |
| How to ask for the birth you want in a hospital setting ** | 1.22 | 1.00 | 0.52 | 95.7* |
| How to soothe baby ** | 1.22 | 1.00 | 0.42 | 100* |
| Sleep training ** | 2.87 | 3.00 | 1.25 | 39.1 |
| General bonding and attachment skills ** | 1.17 | 1.00 | 0.39 | 100* |
| Ways the father can bond with baby during pregnancy and post birth ** | 1.09 | 1.00 | 0.29 | 100* |
| Skills for couple connection, communication, and working together ** | 1.13 | 1.00 | 0.34 | 100* |
| Social support training and how to ask for support ** | 1.17 | 1.00 | 0.39 | 100* |
| Education on developmental milestones in the womb ** | 1.87 | 2.00 | 0.92 | 73.9 |
| Ways a baby's growth and persona is influenced during pregnancy ** | 1.61 | 1.00 | 1.03 | 82.6* |
| Birthing options ** | 1.22 | 1.00 | 0.42 | 100* |
| Pregnancy health ** | 1.26 | 1.00 | 0.45 | 100* |
| Preparation for labour and childbirth ** | 1.22 | 1.00 | 0.42 | 100* |
| Breastfeeding ** | 1.39 | 1.00 | 0.58 | 95.7* |

| | | | | |
|---|---|---|---|---|
| How to influence gene expression of the baby in-utero ** | 2.61 | 3.00 | 0.94 | 47.8 |
| Skills for building secure attachment between the couple ** | 1.35 | 1.00 | 0.49 | 100* |
| Being aware of generational parenting patterns ** | 1.35 | 1.00 | 0.57 | 95.7* |
| Education on conscious awareness of baby in-utero ** | 1.30 | 1.00 | 0.56 | 95.7* |
| Mindfulness skills for pregnancy, labour, birth, and post birth ** | 1.35 | 1.00 | 0.49 | 100* |
| Intentional communication to baby during pregnancy ** | 1.22 | 1.00 | 0.52 | 95.7* |
| Strengthening the couple relationship for the transition to parenthood (e.g., communication, role identity, maintaining intimacy, getting needs met, conflict resolution, how to emotionally support each other, create, maintain, and sustain connection) ** | 1.09 | 1.00 | 0.29 | 100* |
| Ways to include dad/partner from conception onwards ** | 1.13 | 1.00 | 0.34 | 100* |
| Role identity through the transition to parenthood ** | 1.35 | 1.00 | 0.49 | 100* |
| Self-care ** | 1.13 | 1.00 | 0.34 | 100* |
| (Non-judgmental) education on factors that influence a prenate's experience in the womb | 1.52 | 1.00 | 0.95 | 91.3* |
| Importance of minimising the use of interventions at birth (and ways to achieve this) | 1.61 | 1.00 | 0.78 | 82.6* |

| | | | | |
|---|---|---|---|---|
| Stress management skills | 1.22 | 1.00 | 0.52 | 95.7* |
| Co-sleeping | 1.65 | 1.00 | 0.83 | 78.3* |
| Education on birth and care choices - how to say 'no' and stay empowered in a birthing environment | 1.39 | 1.00 | 0.72 | 95.7* |
| Importance of skin-to-skin contact post birth | 1.09 | 1.00 | 0.29 | 100* |
| Education on physiological and psychological development in the prenatal period | 1.57 | 1.00 | 0.66 | 91.3* |
| Understanding communication cues, reactions, and cries of baby post birth | 1.22 | 1.00 | 0.42 | 100* |
| Tools for expecting parents to heal their own birth trauma and early imprints | 1.65 | 1.00 | 1.03 | 91.3* |
| Education on parental impact on the developing nervous system of the baby both in-utero and post birth | 1.39 | 1.00 | 0.78 | 82.6* |
| How to overcome fears relating to pregnancy, birth, and being a parent | 1.09 | 1.00 | 0.29 | 100* |
| How to integrate siblings to the new family structure during pregnancy and post birth | 1.26 | 1.00 | 0.45 | 100* |
| Mindfulness skills for developing healthy and respectful relationships with self, partner, and baby | 1.30 | 1.00 | 0.47 | 100* |
| How to live the life you want post birth | 2.04 | 2.00 | 0.71 | 73.9* |

| | | | | |
|---|---|---|---|---|
| Shared parenting skills | 1.52 | 1.00 | 0.67 | 91.3* |
| Importance of physical and emotional contact between both parents and baby in the perinatal period | 1.30 | 1.00 | 0.47 | 100* |
| Pregnancy, birth, and parenting as a spiritual experience | 1.91 | 2.00 | 0.85 | 69.6 |
| Differentiation parenting; intentional narrative between parent and prenate (and baby post birth) differentiating current adult experience and emotions from baby | 1.91 | 2.00 | 1.08 | 69.6 |
| Maternal and paternal perinatal mood disorders | 1.48 | 1.00 | 0.85 | 87.0* |
| Pregnancy and parenting resources available (in local community and evidence based research) | 1.17 | 1.00 | 0.49 | 95.7* |
| Managing expectations of parenting (e.g., debunking perfectionism and education on 'good enough' parent) | 1.26 | 1.00 | 0.54 | 95.7* |
| Rights and choices as a parent regarding newborn procedures | 1.26 | 1.00 | 0.54 | 95.7* |
| Current population trends in pregnancy, birth, and post birth health | 2.35 | 2.00 | 0.98 | 56.5 |

* Consensus was reached
** Item originated from the literature

***What content do you think is ineffective regarding the needs of expecting parents when considering PPN parenting programs?*** Of the 24 items presented to the panellists, seven (29.17%) reached consensus and the remaining 17 items were forwarded to the round 3 questionnaire.

Table 39

*Round 2 Items Relating to "Content Perceived to be Ineffective Regarding the Needs of Expecting Parents When Considering PPN Parenting Programs" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Any content area that has bias, judgement, and/or an agenda | 1.39 | 1.00 | 0.66 | 91.3* |
| Drug options for birth | 3.09 | 3.00 | 1.16 | 43.5 |
| Sleep training | 2.26 | 2.00 | 1.10 | 65.2 |
| Non-relevant birthing positions | 2.48 | 2.00 | 0.99 | 56.5 |
| Milestones that extend beyond three months post birth | 2.91 | 2.00 | 1.20 | 52.2 |
| Birth complications (factors that can go wrong during birth) | 3.43 | 4.00 | 1.12 | 52.2 (Disagree) |
| Content that is not contextualised for the father too | 2.78 | 2.00 | 1.17 | 52.2 |
| Content that is predominantly focussed on techniques, mechanics, and technical information | 2.70 | 3.00 | 1.02 | 47.8 |
| Feelings of the prenate | 3.91 | 4.00 | 1.13 | 73.9 (Disagree) |
| Content that focusses on one birth plan option only (regardless of option type) | 1.61 | 1.00 | 0.94 | 87.0* |
| Any content that disempowers either the mother or the baby | 1.35 | 1.00 | 1.03 | 91.3* |
| Any content that aligns with a specific product | 1.70 | 1.00 | 1.02 | 78.3* |
| Any topic that the facilitator is not sure is useful for | | | | |

| | | | | |
|---|---|---|---|---|
| parents | 2.48 | 2.00 | 1.16 | 52.2 |
| Any topic that the facilitator is not comfortable presenting | 2.52 | 2.00 | 1.44 | 60.9 |
| Immunisation | 3.83 | 4.00 | 1.07 | 60.9 (Disagree) |
| Circumcision | 4.17 | 4.00 | 0.98 | 78.3* (Disagree) |
| Content that emphasises the medical model for birthing only | 1.57 | 1.00 | 0.79 | 91.3* |
| Influence of gene expression | 3.04 | 3.00 | 1.02 | 30.4 |
| Weekly milestones of prenate development | 3.57 | 3.00 | 1.04 | 47.8 (Disagree) |
| Caesarean section | 4.04 | 4.00 | 0.88 | 82.6* (Disagree) |
| Parenting philosophies | 3.65 | 4.00 | 1.03 | 60.9 (Disagree) |
| Any content areas that does not meet parents where they are at (i.e., in terms of beliefs and/or readiness to receive information) | 2.26 | 2.00 | 1.05 | 69.6 |
| Any content area that is not presented from an evidence base | 2.61 | 2.00 | 1.31 | 56.5 |
| When to take baby to the hospital/clinic/doctor post birth | 3.52 | 4.00 | 1.04 | 56.5 (Disagree) |

* Consensus was reached

***To ensure new PPN parenting programs are relevant and up-to-date, what current practices and/or theories that relate to conception, pregnancy, birth, and post birth do you believe would be of value to educate pregnant couples on?*** Of the 25 items included in this question, 19 reached consensus (76%). The remaining six items were included in round 3.

Table 40

*Round 2 Items Relating to "What Current Practices and/or Theories that Relate to Conception, Pregnancy, Birth, and Post Birth Would be of Value to Educate Pregnant Couples On?" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Emotional development prenates and neonates | 1.61 | 1.00 | 0.72 | 87.0* |
| PPN psychology | 1.48 | 1.00 | 0.79 | 91.3* |
| Infant mental health | 1.70 | 2.00 | 0.82 | 87.0* |
| Postpartum maternal mood disorders | 1.30 | 1.00 | 0.56 | 95.7* |
| Bonding and attachment theory | 1.22 | 1.00 | 0.56 | 95.7* |
| Conscious conception | 1.91 | 1.00 | 1.20 | 73.9 |
| Bonding through meditation | 2.22 | 2.00 | 1.04 | 65.2 |
| Innate wisdom; a woman's intuitive knowing of how to mother during pregnancy and beyond and how to birth naturally | 1.78 | 2.00 | 0.95 | 82.6* |
| Consciousness of unborn and neonate | 1.30 | 1.00 | 0.56 | 95.7* |
| Epigenetics | 1.57 | 1.00 | 0.73 | 87.0* |
| Informed choice for circumcision | 1.48 | 1.00 | 0.79 | 91.3* |
| Sacred hour: skin-to-skin contact | 1.04 | 1.00 | 0.21 | 100* |
| Midwifery model of care | 1.39 | 1.00 | 0.58 | 95.7* |
| Conscious parenting | 1.35 | 1.00 | 0.71 | 95.7* |
| Mindfulness for parenting | 1.48 | 1.00 | 0.73 | 95.7* |
| Somatic Experiencing | 1.96 | 2.00 | 0.93 | 69.6 |
| CBT for parenting | 2.48 | 2.00 | 1.16 | 60.9 |

| | | | | |
|---|---|---|---|---|
| Affect regulation | 1.65 | 2.00 | 0.71 | 87.0* |
| Natural birth practices | 1.52 | 1.00 | 0.73 | 87.0* |
| Prenatal and birth imprints handed down from mother to baby | 1.83 | 2.00 | 0.83 | 73.9 |
| Social nervous system (as part of Porge's Polyvagal Theory) | 2.09 | 2.00 | 1.16 | 60.9 |
| Self-regulation for mum, dad, and baby | 1.39 | 1.00 | 0.58 | 95.7* |
| Neuroscience - in context of the developing prenate and neonate | 1.61 | 1.00 | 0.78 | 91.3* |
| Trauma imprinting | 1.70 | 1.00 | 0.88 | 82.6* |
| Delayed cord clamping | 1.35 | 1.00 | 0.71 | 95.7* |

* Consensus was reached

***Which groups of parents do you believe may benefit from having access to PPN parenting programs?*** Consensus was reached on 100% of the 14 items presented for rating.

Table 41

*Round 2 Items Relating to "Groups of Parents Who May Benefit From Having Access to PPN Parenting Programs" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| First-time parents ** | 1.00 | 1.00 | 0.00 | 100* |
| Existing parents who are pregnant again ** | 1.48 | 1.00 | 0.59 | 95.7* |
| Pregnant teens ** | 1.00 | 1.00 | 0.00 | 100* |
| Single parents ** | 1.04 | 1.00 | 0.21 | 100* |
| Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges) ** | 1.04 | 1.00 | 0.21 | 100* |
| Same-sex couples ** | 1.04 | 1.00 | 0.21 | 100* |

| | | | | |
|---|---|---|---|---|
| Parents with trauma history | 1.04 | 1.00 | 0.21 | 100* |
| Parents expecting multiples | 1.04 | 1.00 | 0.21 | 100* |
| Parents who are adopting | 1.09 | 1.00 | 0.29 | 100* |
| Surrogacy parents (both birth mother and intended parents) | 1.09 | 1.00 | 0.29 | 100* |
| All primary support people | 1.30 | 1.00 | 0.47 | 100* |
| Existing parents who are pregnant again and who did not take classes with previous pregnancies | 1.22 | 1.00 | 0.42 | 100* |
| Children from early school age through until end of school | 1.96 | 2.00 | 0.93 | 78.3* |
| Non parents: birth professionals and educators | 1.35 | 1.00 | 0.57 | 95.7* |

* Consensus was reached
** Item originated from the literature

***Who do you believe should attend PPN parenting programs?*** Consensus reached on five out of eight items (62.5%), and of those, two reached consensus in the direction of *disagreement* for the items ("mum only", "dad only"). The three statements where consensus was not attained were included in round 3.

Table 42

*Round 2 Items Relating to "Who Should Attend PPN Parenting Programs" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Mum only ** | 4.43 | 5.00 | 0.95 | 91.3* (Disagree) |
| Dad only ** | 4.48 | 5.00 | 0.95 | 91.3* (Disagree) |
| Both mum and dad/partner ** | 1.00 | 1.00 | 0.00 | 100* |
| Both mum and dad/partner with some sessions for dad/partner only ** | 1.83 | 1.00 | 1.03 | 65.2 |

| | | | | |
|---|---|---|---|---|
| Both mum and dad/partner with some sessions for mum only ** | 2.22 | 2.00 | 1.38 | 56.5 |
| Siblings | 2.22 | 2.00 | 0.80 | 65.2 |
| Grandparents | 2.00 | 2.00 | 0.67 | 78.3* |
| Extended family members who will be caregivers to the baby once born | 1.83 | 2.00 | 0.72 | 91.3* |

* Consensus was reached
** Item originated from the literature

***In your opinion, what factors would contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?*** Of the 18 items included for rating, 15 attained consensus (83.33%), and the remaining three items were included in round 3.

Table 43

*Round 2 Items Relating to "Factors That May Contribute to Fathers/Partners Attending Less PPN Parenting Related Sessions/Programs than Expecting Mothers" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Genuine work schedule clashes with class times | 2.00 | 2.00 | 0.91 | 87.0* |
| Lack of support from workplaces for fathers to take time away from work to attend classes | 1.39 | 1.00 | 0.50 | 100* |
| Information in many prenatal classes are targeted towards mum and baby only with little direct content targeted to the role of father | 1.83 | 2.00 | 0.89 | 91.3* |
| Fathers not being invited/encouraged to attend classes by their partner, service providers, or both | 1.65 | 2.00 | 0.71 | 95.7* |
| Perception by fathers that it is not manly to attend | 1.83 | 2.00 | 0.72 | 91.3* |

| | | | | |
|---|---|---|---|---|
| Societal and cultural norms that pregnancy is women's business | 1.57 | 2.00 | 0.59 | 95.7* |
| Lack of role identity by an expecting father | 1.65 | 2.00 | 0.57 | 95.7* |
| Perceived general lack of desire and an unwillingness to participate in classes by men | 2.22 | 2.00 | 0.99 | 65.2 |
| Fathers may feel left out and as though they do not belong when they attend class | 1.78 | 2.00 | 0.60 | 91.3* |
| General lack of understanding of the importance of the role of the father in the wellbeing of a growing prenate | 1.39 | 1.00 | 0.50 | 100* |
| Fear of: becoming a father, being judged, not fitting in, being in a group setting, the potential of having to talk about emotions) | 1.83 | 2.00 | 0.83 | 82.6* |
| Poor paternal leave policies (reducing motivation by fathers to engage in parenting preparation) | 1.57 | 1.00 | 0.84 | 87.0* |
| Lack of father-to-father mentoring in current programs | 1.61 | 2.00 | 0.58 | 95.7* |
| Lack of current programs being facilitated by men | 1.65 | 1.00 | 0.89 | 82.6* |
| Women feel comfortable talking to other women so need a women-only environment | 2.43 | 2.00 | 1.12 | 65.2 |
| Fathers do not directly experience the pregnancy, leading to less communication and connection with the baby in-utero which influences a perceived lack of need to attend classes | 2.30 | 2.00 | 1.02 | 69.6 |

| | | | | |
|---|---|---|---|---|
| Cultural and societal norms where boys are not taught from a young age to become caring, supportive, self-responsible, and empowered men and fathers | 1.65 | 2.00 | 0.65 | 91.3* |
| Males have a more natural confidence about parenting than do women and do not feel the need to attend | 4.43 | 4.00 | 0.59 | 95.7* (Disagree) |

* Consensus was reached

***What stage of a pregnancy do you believe is the most effective time for PPN parenting programs to start?*** Three of the nine (33.33%) items achieved consensus and the remaining six items were included in the round 3 questionnaire for re-rating.

Table 44

*Round 2 Items Relating to "Stage of a Pregnancy That May Be Most Effective for PPN Parenting Programs to Start" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| No set time—when the parent/s are ready and motivated to attend prenatal classes/education sessions | 3.09 | 4.00 | 1.24 | 56.5 (Disagree) |
| Preconception | 1.87 | 2.00 | 0.97 | 69.6 |
| As soon as the couple discover they are pregnant | 1.91 | 2.00 | 0.85 | 78.3* |
| Trimester one | 1.87 | 2.00 | 0.87 | 87.0* |
| Trimester two | 2.65 | 2.00 | 1.19 | 56.5 |
| Trimester three | 2.83 | 2.00 | 1.30 | 52.2 |
| After quickening (when mother perceives fetal movement) | 2.83 | 2.00 | 1.23 | 52.2 |
| After first ultrasound | 3.00 | 3.00 | 1.31 | 43.5 |

| | | | | |
|---|---|---|---|---|
| Late teens/early adulthood—prior to any pregnancy | 1.74 | 2.00 | 0.81 | 78.3* |

* Consensus was reached

***What do you believe is the most effective time for PPN parenting programs to end?***

No items met the consensus criteria and all five were included in the round 3 questionnaire.

Table 45

*Round 2 Items Relating to "Most Effective Time for PPN Parenting Programs to End" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Before birth ** | 3.52 | 4.00 | 1.28 | 65.2 (Disagree) |
| Within three months post birth ** | 2.48 | 2.00 | 1.12 | 60.9 |
| Within three to six months post birth ** | 2.26 | 2.00 | 1.01 | 69.6 |
| Within six to 12 months post birth ** | 2.43 | 2.00 | 1.24 | 60.9 |
| Three years post birth | 2.70 | 3.00 | 1.46 | 47.8 |

** Item originated from the literature

***How do you believe information in PPN parenting programs can most effectively be presented/delivered?*** Seven of the nine items presented to the panellists for this question met consensus (77.78%), and the remaining two items were incorporated in the final round.

Table 46

*Round 2 Items Relating to "How Information in PPN Parenting Programs Can Most Effectively be Presented/Delivered" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Lecture style ** | 3.04 | 3.00 | 1.02 | 65.2 |
| Use of video ** | 2.04 | 2.00 | 0.93 | 82.6* |
| Manual/workbook ** | 2.43 | 2.00 | 0.99 | 60.9 |

| | | | | |
|---|---|---|---|---|
| Experiential (e.g., practicing skills, modelling of skills, role playing, parents sharing experiences, discussions) ** | 1.35 | 1.00 | 0.71 | 95.7* |
| Home practice activities to consolidate learning ** | 1.74 | 2.00 | 0.75 | 91.3* |
| Standardised one-size-fits-all program ** | 4.26 | 4.00 | 0.62 | 91.3* (Disagree) |
| Individualised program where couples can select modules that apply to their unique circumstances ** | 2.00 | 2.00 | 0.80 | 78.3* |
| A combination of standardised core modules along with the ability to select other modules that apply to your unique circumstances ** | 1.65 | 2.00 | 0.57 | 95.7* |
| Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, printed resources, take home tasks) ** | 1.17 | 1.00 | 0.39 | 100* |

* Consensus was reached
** Item originated from the literature

***What do you believe is the most effective location/platform for delivery of PPN parenting programs?*** Twelve items were presented to the panellists and of those, four (33.33%) reached consensus. The remaining eight items were included in the round 3 questionnaire.

Table 47

*Round 2 Items Relating to "The Most Effective Location/Platform for Delivery of PPN Parenting Programs" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| In-person group sessions in a hospital setting ** | 2.74 | 3.00 | 1.05 | 47.8 |
| In-person group sessions in a training room environment ** | 2.04 | 2.00 | 0.64 | 78.3* |

| | | | | |
|---|---|---|---|---|
| In-person couple session in a hospital setting ** | 2.96 | 3.00 | 0.98 | 34.8 |
| In-person couple sessions in a training room environment ** | 2.17 | 2.00 | 0.78 | 69.6 |
| Self-guided learning from home (e.g., with downloadable videos, worksheets, manual) ** | 2.70 | 3.00 | 1.06 | 43.5 |
| 'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions) ** | 2.48 | 2.00 | 1.04 | 56.5 |
| 'Live' webinar sessions that are not interactive (where a parent can listen 'live' to sessions, but cannot actively contribute) ** | 3.57 | 4.00 | 1.20 | 65.2 (Disagree) |
| Sessions delivered via home visits ** | 1.87 | 2.00 | 0.69 | 91.3* |
| Sessions delivered in the workplace ** | 2.61 | 3.00 | 0.94 | 47.8 |
| Sessions delivered in community centers ** | 1.74 | 2.00 | 0.62 | 91.3* |
| Sessions delivered via phone, Skype, Zoom (or other similar platforms) ** | 2.43 | 2.00 | 0.90 | 56.5 |
| In a parent-to-parent mentoring environment | 1.65 | 2.00 | 0.78 | 91.3* |

* Consensus was reached
** Item originated from the literature

***In your opinion who ought to deliver PPN parenting programs?*** Four of the 16 items (25%) presented for this question reached consensus. The remaining 12 items were included in the final round questionnaire.

Table 48

*Round 2 Items Relating to "Who Ought to Deliver PPN Parenting Programs" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| OB/GYN ** | 3.26 | 4.00 | 1.10 | 52.2 (Disagree) |
| Midwife ** | 1.87 | 2.00 | 0.87 | 91.3* |
| Doula ** | 2.13 | 2.00 | 0.87 | 73.9 |
| Childbirth educator ** | 1.35 | 1.00 | 0.57 | 95.7* |
| Nurse ** | 2.30 | 2.00 | 1.11 | 69.6 |
| Psychologist, social worker, therapist, counsellor, coach ** | 2.26 | 2.00 | 0.86 | 65.2 |
| Academic researchers ** | 3.39 | 3.00 | 0.78 | 47.8 (Disagree) |
| Parents ** | 2.04 | 2.00 | 0.77 | 78.3* |
| Elders from the community ** | 2.61 | 2.00 | 1.08 | 52.2 |
| Collaboration between psychologist, midwife, and childbirth educator | 1.65 | 1.00 | 0.94 | 87.0* |
| Collaboration of different community members from diverse backgrounds | 2.13 | 2.00 | 1.06 | 65.2 |
| Community outreach people | 2.78 | 3.00 | 1.04 | 43.5 |
| Anyone with skills to coach, offer support and encouragement, be culturally sensitive, and listen | 2.52 | 2.00 | 0.99 | 56.5 |
| Anyone who has passion for the material and can deliver in a good way | 2.61 | 3.00 | 1.12 | 47.8 |
| Any facilitator (regardless of credentials) who has the right attitude (e.g., positive, empowering, optimistic, open-minded) | 2.83 | 3.00 | 1.15 | 43.5 |

| | | | | |
|---|---|---|---|---|
| Anyone who can be personal in their approach | 3.48 | 4.00 | 1.082 | 52.2 (Disagree) |

* Consensus was reached

** Item originated from the literature

***What do you believe is the most effective length of each session in PPN parenting programs?*** No items attained consensus amongst panellists for this question, and all nine were included in round 3.

Table 49

*Round 2 Items Relating to "The Most Effective Length of Each Session in PPN Parenting Programs" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| 45 minutes | 3.35 | 4.00 | 1.23 | 56.5 (Disagree) |
| One hour | 2.91 | 3.00 | 1.38 | 43.5 (Disagree) |
| 1.5 hours | 2.74 | 2.00 | 1.21 | 52.2 |
| Two hours | 2.09 | 2.00 | 1.13 | 69.6 |
| 2.5 hours | 2.78 | 2.00 | 1.31 | 56.5 |
| Three hours | 3.48 | 4.00 | 1.04 | 56.5 (Disagree) |
| Half day | 3.04 | 4.00 | 1.33 | 52.2 (Disagree) |
| Full day | 3.52 | 4.00 | 1.24 | 60.8 (Disagree) |
| No set time—course specific | 2.78 | 3.00 | 1.41 | 43.5 |

***In your opinion, what is the most effective amount of time between each session?*** Six items were presented to panellists and one met the consensus criteria (16.67%). The remaining five items were included for re-rating in round 3.

Table 50

*Round 2 Items Related to "The Most Effective Amount of Time Between Each Session" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Between 1-5 days | 3.09 | 3.00 | 1.04 | 30.4 |
| Between 5-7 days | 2.48 | 2.00 | 1.04 | 52.2 |
| One week | 1.87 | 2.00 | 0.76 | 78.3* |
| Between 1-2 weeks | 2.65 | 3.00 | 1.03 | 47.8 |
| Two weeks | 3.35 | 4.00 | 1.27 | 65.2 (Disagree) |
| One week for sessions held in trimester one and then more spread out up until the end of the pregnancy | 2.65 | 4.00 | 1.15 | 43.5 |

* Consensus was reached

***What do you believe is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?*** None of the 15 items presented reached consensus and all were included for re-rating in round 3.

Table 51

*Round 2 Items Relating to "The Most Effective Overall Length of PPN Parenting Programs in Time (e.g., Number of Weeks or Months)" (Study 4; n=23)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Six weeks | 2.70 | 3.00 | 1.11 | 47.8 |
| Between 7–10 weeks | 3.04 | 3.00 | 1.15 | 34.8 |
| Eight weeks | 2.91 | 3.00 | 1.08 | 39.1 |
| 12 weeks | 3.17 | 3.00 | 1.07 | 30.4 |
| 16 weeks | 3.22 | 3.00 | 1.04 | 26.1 |
| No set time—it depends on the needs | | | | |

| | | | | |
|---|---|---|---|---|
| of the parents | 2.13 | 2.00 | 1.01 | 69.6 |
| From trimester one until birth | 3.00 | 3.00 | 1.04 | 39.1 |
| From trimester one until three months post birth | 2.39 | 2.00 | 1.08 | 65.2 |
| From trimester one until six months post birth | 2.43 | 2.00 | 1.20 | 56.5 |
| From 12 months preconception until post birth | 3.00 | 3.00 | 1.21 | 30.4 |
| Five weeks in trimester one and five weeks in trimester three | 3.39 | 4.00 | 0.99 | 56.5 (Disagree) |
| Six weeks spanning trimesters one/two, two weeks at end of trimester three, two weeks three months post birth | 3.43 | 4.00 | 0.90 | 56.5 (Disagree) |
| Six weeks every three months from trimester one until 12 months post birth | 3.35 | 4.00 | 1.07 | 52.2 (Disagree) |
| From trimester two until three months post birth | 3.30 | 4.00 | 1.11 | 56.5 (Disagree) |
| From trimester three until three months post birth | 3.39 | 4.00 | 1.16 | 56.5 (Disagree) |

***If you have any additional comments regarding round 2, or if there are other questions related to the topic that you believe are important to present to the panel, please list these so they can be added to round 3 considerations.*** Twelve birth professional

panellists shared comments clarifying why they rated items the way they did, as well as sharing opinions of the current way PPN parenting programs are delivered. However, no new information that related to the questions in the study was included; hence no new items were generated for inclusion in the third and final round of the study.

**Quantitative Analysis**

**Round 3.** Of the 23 panellists who completed round 2, 86.96% completed round 3 (*n*=20). The attrition rate was 13.04% (n=3), which is well within the 30% margin recommended in the literature (Sumsion, 1998). The round 3 panel consisted of two males (10%) and 18 females (90%). Fifteen questions from round 2 formed the round 3 questionnaire, and in total, 101 items that did not attain consensus in round 2 were presented to the panellists to re-rate levels of [dis]agreement (refer to Appendix R for the round 3 questionnaire). In alignment with round 2, central tendency, variability, and consensus percentages were calculated and presented in Tables 52 to 65. A brief description of results is included for each question in this section. A detailed discussion is included and incorporates links between the panellist-generated items and related literature. Lastly, recommendations generated from Study 4 for future PPN parenting programs are provided.

A total of 242 items for consensus rating were presented to the expert birth professional panellists, across the 3 rounds of the study. Consensus was achieved for 157 items (64.88%). The remaining 85 items (35.12%) did not reach agreement. For ease of reading, all items that attained consensus across the three rounds are in Appendix S, and all non-consensus items are outlined in Appendix T.

***What factors do you believe may impact both the development of prenates during gestation and influence who babies become post birth?*** Of the three items presented, one (33.33%) reached consensus in this final round.

Table 52

*Round 3 Items Relating to "Factors That May Impact Both the Development of Prenates during Gestation and Influence Who Babies Become Post Birth" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Age of mother ** | 2.60 | 2.50 | 0.82 | 50.0 |
| Ultrasound exposure | 2.75 | 2.00 | 1.12 | 55.0 |
| Sibling attitude about the pregnancy | 2.35 | 2.00 | 0.99 | 75.0* |

* Consensus was reached
** Item originated from the literature

***What content do you think is most effective regarding the needs of expecting parents when considering PPN parenting programs?*** Three (42.86%) of the seven items attained consensus by the panellists in round 3.

Table 53

*Round 3 Items Relating to "Content Perceived to be Most Effective Regarding the Needs of Expecting Parents When Considering PPN Parenting Programs" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Sleep training ** | 3.35 | 4.00 | 1.31 | 55.0 (Disagree) |
| Education on developmental milestones in the womb ** | 1.90 | 2.00 | 0.85 | 80.0* |
| How to influence gene expression of the baby in-utero ** | 2.75 | 3.00 | 1.02 | 35.0 |
| How to live the life you want post birth | 2.10 | 2.00 | 0.97 | 75.0* |
| Pregnancy, birth, and parenting as a spiritual experience | 2.05 | 2.00 | 0.83 | 65.0 |
| Differentiation parenting; intentional narrative between parent and prenate (and baby post birth) differentiating current adult experience and | | | | |

| | | | | |
|---|---|---|---|---|
| emotions from baby | 2.10 | 2.00 | 1.07 | 75.0* |
| Current population trends in pregnancy, birth and post birth health | 2.90 | 3.00 | 1.02 | 40.0 |

* Consensus was reached
** Item originated from the literature

***What content do you think is ineffective regarding the needs of expecting parents when considering PPN parenting programs?*** Of the 17 items put forward to the panellists, three (17.65%) reached consensus.

Table 54

*Round 3 Items Relating to "Content Perceived to be Ineffective Regarding the Needs of Expecting Parents When Considering PPN Parenting Programs" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Drug options for birth | 3.45 | 4.00 | 1.32 | 65.0 (Disagree) |
| Sleep training | 3.05 | 3.00 | 1.36 | 45.0 (Disagree) |
| Non-relevant birthing positions | 2.65 | 3.00 | 1.04 | 45.0 |
| Milestones that extend beyond three-months post birth | 3.10 | 3.00 | 1.07 | 45.0 (Disagree) |
| Birth complications (factors that can go wrong during birth) | 3.70 | 4.00 | 1.26 | 75.0* (Disagree) |
| Content that is not contextualised for the father too | 2.75 | 2.50 | 1.16 | 50.0 |
| Content that is predominantly focussed on techniques, mechanics, and technical information | 2.70 | 2.50 | 1.22 | 50.0 |
| Feelings of the prenate | 4.10 | 4.00 | 0.85 | 70.0 |
| Any topic that the facilitator is not sure is useful for | | | | |

| | | | | |
|---|---|---|---|---|
| parents | 2.85 | 3.00 | 0.99 | 35.0 |
| Any topic that the facilitator is not comfortable presenting | 3.00 | 3.00 | 1.17 | 40.0 (Disagree) |
| Immunisation | 3.55 | 4.00 | 1.10 | 55.0 (Disagree) |
| Influence of gene expression | 3.15 | 3.00 | 0.93 | 30.0 (Disagree) |
| Weekly milestones of prenate development | 3.70 | 4.00 | 1.03 | 75.0* (Disagree) |
| Parenting philosophies | 3.35 | 4.00 | 0.99 | 55.0 (Disagree) |
| Any content areas that does not meet parents where they are at (i.e., in terms of beliefs and/or readiness to receive information) | 2.70 | 2.50 | 1.13 | 50.0 |
| Any content area that is not presented from an evidence base | 2.95 | 3.00 | 1.19 | 40.0 |
| When to take baby to the hospital/clinic/doctor post birth | 3.60 | 4.00 | 1.19 | 75.0* (Disagree) |

* Consensus was reached

***To ensure new PPN parenting programs are relevant and up-to-date, what current practices and/or theories that relate to conception, pregnancy, birth, and post birth do you believe would be of value to educate pregnant couples on?*** Six items were presented to the panellists, and one met the criteria for consensus (16.67%).

Table 55

*Round Items Relating to "What Current Practices and/or Theories that Relate to Conception, Pregnancy, Birth, and Post Birth Would be of Value to Educate Pregnant Couples On?" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Conscious conception | 2.30 | 2.00 | 1.30 | 65.0 |

| | | | | |
|---|---|---|---|---|
| Bonding through meditation | 2.10 | 2.00 | 0.85 | 70.0 |
| Somatic Experiencing | 2.30 | 2.50 | 0.80 | 50.0 |
| CBT for parenting | 2.65 | 2.50 | 1.04 | 50.0 |
| Prenatal and birth imprints handed down from mother to baby | 1.80 | 2.00 | 0.70 | 85.0* |
| Social nervous system (as part of Porge's Polyvagal Theory) | 2.15 | 2.00 | 0.75 | 65.0 |

* Consensus was reached

***Who do you believe should attend PPN parenting programs?*** Of the three statements where consensus was not reached in round 2, two (66.7%) met consensus criteria in the final round.

Table 56

*Round 3 Items Relating to "Who Should Attend PPN Parenting Programs" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Both mum and dad/partner with some sessions for dad/partner only ** | 1.65 | 2.00 | 0.75 | 95.0* |
| Both mum and dad/partner with some sessions for mum only ** | 1.90 | 2.00 | 0.91 | 85.0* |
| Siblings | 2.25 | 2.00 | 0.85 | 70.0 |

* Consensus was reached
** Item originated from the literature

***In your opinion, what factors would contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?*** Two of the three items (66.7%) included in round 3 attained consensus.

Table 57

*Round 3 Items Relating to "Factors That May Contribute to Fathers/Partners Attending Less PPN Parenting Related Sessions/Programs than Expecting Mothers" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Perceived general lack of desire and an unwillingness to participate in classes by men | 2.15 | 2.00 | 0.93 | 80.0* |
| Women feel comfortable talking to other women so need a women-only environment | 2.65 | 2.00 | 1.04 | 60.0 |
| Fathers do not directly experience the pregnancy, leading to less communication and connection with the baby in-utero which influences a perceived lack of need to attend classes | 2.05 | 2.00 | 0.51 | 85.0* |

* Consensus was reached

***What stage of a pregnancy do you believe may be the most effective time for PPN parenting programs to start?*** Of the six items re-presented to the birth professional panellists for rating in the final round of the study, none attained consensus.

Table 58

*Round 3 Items Relating to "Stage of a Pregnancy That May Be Most Effective for PPN Parenting Programs to Start" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| No set time—when the parent/s are ready and motivated to attend prenatal classes/education sessions | 2.80 | 2.50 | 1.32 | 50.0 |
| Preconception | 2.20 | 2.00 | 1.05 | 70.0 |
| Trimester two | 2.35 | 2.00 | 1.18 | 70.0 |
| Trimester three | 2.60 | 2.00 | 1.35 | 60.0 |

| | | | | |
|---|---|---|---|---|
| After quickening (when mother perceives fetal movement) | 2.80 | 2.50 | 1.24 | 50.0 |
| After first ultrasound | 3.05 | 3.00 | 1.19 | 45.0 (Disagree) |

***What do you believe is the most effective time for PPN parenting programs to end?***

Consistent with round 2 results, all items failed to reach consensus in the final round.

Table 59

*Round 3 Items Relating to "Most Effective Time for PPN Parenting Programs to End" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Before birth ** | 3.65 | 4.00 | 0.99 | 73.0 (Disagree) |
| Within three months post birth ** | 2.45 | 2.00 | 1.10 | 60.0 |
| Within three to six months post birth ** | 2.50 | 2.00 | 0.95 | 60.0 |
| Within six to 12 months post birth ** | 2.60 | 2.00 | 1.23 | 55.0 |
| Three years post birth | 3.40 | 4.00 | 1.09 | 55.0 (Disagree) |

** Item originated from the literature

***How do you believe information in PPN parenting programs can most effectively be presented/delivered?*** Two items were re-presented and consensus was not achieved for either item.

Table 60

*Round 3 Items Relating to "How Information in PPN Parenting Programs Can Most Effectively be Presented/Delivered" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Lecture style ** | 3.15 | 3.00 | 1.09 | 45.0 (Disagree) |

| | | | | |
|---|---|---|---|---|
| Manual/workbook ** | 2.85 | 3.00 | 0.93 | 45.0 |

** Item originated from the literature

***What do you believe is the most effective location/platform for delivery of PPN parenting programs?*** Eight items were presented to the panellists and one (12.5%) reached consensus.

Table 61

*Round 3 Items Relating to "The Most Effective Location/Platform for Delivery of PPN Parenting Programs" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| In-person group sessions in a hospital setting ** | 2.60 | 2.50 | 0.99 | 50.0 |
| In-person couple session in a hospital setting ** | 2.70 | 2.50 | 1.08 | 50.0 |
| In-person couple sessions in a training room environment ** | 2.25 | 2.00 | 0.91 | 75.0* |
| Self-guided learning from home (e.g., with downloadable videos, worksheets, manual) ** | 2.60 | 2.00 | 0.88 | 55.0 |
| 'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions) ** | 2.35 | 2.00 | 0.89 | 70.0 |
| 'Live' webinar sessions that are not interactive (where a parent can listen 'live' to sessions, but cannot actively contribute) ** | 3.20 | 3.00 | 1.15 | 45.0 (Disagree) |
| Sessions delivered in the workplace ** | 3.20 | 3.00 | 1.06 | 45.0 |
| Sessions delivered via phone, Skype, Zoom (or other similar platforms) ** | 2.70 | 3.00 | 0.80 | 40.0 |

* Consensus was reached

** Item originated from the literature

***In your opinion who ought to deliver PPN parenting programs?*** Of the 12 items included in round 3 for re-rating, two (16.67%) reached consensus.

Table 62

*Round 3 Items Relating to "Who Ought to Deliver PPN Parenting Programs" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| OB/GYN ** | 3.25 | 3.00 | 1.16 | 45.0 (Disagree) |
| Doula ** | 2.30 | 2.00 | 1.13 | 75.0* |
| Nurse ** | 2.50 | 2.00 | 1.05 | 55.0 |
| Psychologist, social worker, therapist, counsellor, coach** | 2.25 | 2.00 | 0.97 | 60.0 |
| Academic researchers ** | 3.45 | 4.00 | 0.89 | 60.0 (Disagree) |
| Elders from the community ** | 2.90 | 3.00 | 0.97 | 45.0 |
| Collaboration of different community members from diverse backgrounds | 2.30 | 2.00 | 1.03 | 60.0 |
| Community outreach people | 3.05 | 3.00 | 0.89 | 40.0 (Disagree) |
| Anyone with skills to coach, offer support and encouragement, be culturally sensitive, and listen | 2.90 | 3.00 | 1.12 | 45.0 |
| Anyone who has passion for the material and can deliver in a good way | 3.10 | 3.00 | 0.91 | 40.0 (Disagree) |
| Any facilitator (regardless of credentials) who has the right attitude (e.g., positive, empowering, optimistic, open minded) | 3.60 | 4.00 | 0.82 | 70.0 (Disagree) |

| | | | | |
|---|---|---|---|---|
| Anyone who can be personal in their approach | 3.75 | 4.00 | 0.79 | 75.0* (Disagree) |

* Consensus was reached
** Item originated from the literature

***What do you believe is the most effective length of each session in PPN parenting programs?*** Of the nine items presented to the panellists, none attained consensus in this round. This outcome was consistent with existing literature.

Table 63.

*Round 3 Items Relating to "The Most Effective Length of Each Session in PPN Parenting Programs" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| 45 minutes | 3.40 | 3.50 | 0.94 | 50.0 (Disagree) |
| One hour | 2.70 | 2.00 | 1.14 | 55.0 |
| 1.5 hours | 2.55 | 2.00 | 1.05 | 55.0 |
| Two hours | 2.25 | 2.00 | 1.02 | 65.0 |
| 2.5 hours | 2.70 | 2.50 | 1.13 | 50.0 |
| Three hours | 3.25 | 4.00 | 0.91 | 55.0 (Disagree) |
| Half day | 3.30 | 3.50 | 0.80 | 50.0 (Disagree) |
| Full day | 3.35 | 4.00 | 0.99 | 55.0 (Disagree) |
| No set-time—course specific | 2.65 | 3.00 | 1.04 | 45.0 |

***In your opinion, what is the most effective amount of time between each session?***

Five items were included and one (20%) reached consensus.

Table 64

*Round 3 Items Relating to "The Most Effective Amount of Time Between Each Session" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Between 1-5 days | 3.30 | 4.00 | 0.87 | 55.0 (Disagree) |
| Between 5-7 days | 1.90 | 2.00 | 0.85 | 80.0* |
| Between 1-2 weeks | 2.70 | 2.00 | 1.08 | 55.0 |
| Two weeks | 3.15 | 4.00 | 0.99 | 55.0 (Disagree) |
| One week for sessions held in trimester one and then more spread out up until the end of the pregnancy | 3.15 | 3.50 | 0.99 | 50.0 (Disagree) |

* Consensus was reached

***What do you believe is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?*** As with round 2, consensus was not attained for the 15 items presented.

Table 65

*Round 3 Items Relating to "The Most Effective Overall Length of PPN Parenting Programs in Time (e.g., Number of Weeks or Months)" (Study 4; n=20)*

| Item | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| Six weeks | 2.70 | 2.50 | 1.13 | 50.0 |
| Between 7–10 weeks | 3.00 | 3.00 | 0.97 | 40.0 (Disagree) |
| Eight weeks | 3.25 | 3.50 | 0.85 | 50.0 (Disagree) |
| 12 weeks | 3.30 | 4.00 | 0.98 | 55.0 (Disagree) |
| 16 weeks | 3.50 | 4.00 | 0.83 | 60.0 (Disagree) |
| No set time—it depends on the needs of the parents | 2.25 | 2.00 | 0.79 | 65.0 |

| | | | | |
|---|---|---|---|---|
| From trimester one until birth | 3.15 | 3.00 | 0.93 | 45.0 (Disagree) |
| From trimester one until three months post birth | 2.35 | 2.00 | 0.93 | 65.0 |
| From trimester one until six months post birth | 2.80 | 3.00 | 1.15 | 45.0 |
| From 12 months preconception until post birth | 3.25 | 3.00 | 0.91 | 45.0 (Disagree) |
| Five weeks in trimester one and five weeks in trimester three | 3.55 | 4.00 | 0.76 | 60.0 (Disagree) |
| Six weeks spanning trimesters one and two, two weeks at end of trimester three and two weeks three months post birth | 3.30 | 3.00 | 0.73 | 45.0 (Disagree) |
| Six weeks every three months from trimester one until 12 months post birth | 3.40 | 4.00 | 0.82 | 55.0 (Disagree) |
| From trimester two until three months post birth | 3.30 | 4.00 | 0.92 | 55.0 (Disagree) |
| From trimester three until three months post birth | 3.40 | 4.00 | 0.75 | 55.0 (Disagree) |

## Discussion

The aim of Study 4 was to broaden understanding beyond what both the literature and expert parents from Study 3 considered to be important and relevant factors for inclusion when designing, developing, and delivering effective PPN parenting programs for the 21st

century. Study 4 was the final study of the dissertation project, and after three rounds, 20 birth professionals, predominantly from the USA, completed the Delphi methodology study. The intended outcome was for the panellists to reach consensus on the 242 items presented. The findings from the current study were compared with existing literature and considered in the framework of the six research questions examined. A list of recommendations for future PPN parenting programs was created from the final results of the birth professional Delphi methodology study (see Appendix U). A discussion that compared findings between the two Delphi methodology studies conducted in this dissertation project is provided in Chapter 9.

**Research Question 1: What Factors May Impact Both the Development of Prenates during Gestation and Influence who Babies Become Post Birth, that Expecting Parents Would Benefit from Learning About?**

Sixteen items drawn from the literature were presented in round 1 for consensus rating and 15 of these items reached consensus (See Table 4, p. 195 items marked with **). This suggested strong consistency between birth professional perceptions and the current research. The 15 items were added to the recommendation list of prospective topics for inclusion in future PPN parenting programs (see Appendix U). The item "age of mother" did not achieve consensus, and in fact was only perceived to be an important factor on the development of prenates during gestation and on babies post birth, by 50% of the birth professional panellists. This was aligned with recent research (e.g., Dietl, Cupisti, Beckmann, Schwab, & Zollner, 2015), that is also inconsistent in findings and is polarised in views and outcomes. For example, a recent study suggested that the outcomes of pregnancy for infants born to women older than 40 years does not vary significantly from younger pregnant women, when: regular prenatal check-ups are attended, a healthy diet and exercise routine is followed by the mother throughout the pregnancy, and any pregnancy related medical issues such as gestational diabetes are managed medically (Dietl et al., 2015). In contrast to this,

Kenny et al. (2013) found that adverse outcomes for babies, such as low birth weight, preterm birth, and even fetal death, exist for women aged over 40 years. Other researcher findings have yielded inconclusive results relating to specific adverse impacts on prenates and babies post birth, as maternal age increases (e.g., Wang, Tanbo, Abyholm, & Henriksen, 2011).

Twenty-one of the 23 panellist-generated items were perceived by the participating birth professionals to be potentially impactful on both developing prenates and who babies become post birth. As a result, the 21 items were included in the recommendations list as potential content topics for future PPN parenting programs. Of these items, the most important based on consensus percentages included:

- "social support available to the mother during pregnancy and beyond". As examined in the Chapter 5 literature review that underpinned Study 1, as well as in the discussion from Study 3, the literature endorsed that a lack of social support is associated with low birth weight babies, which is a main cause of infant mortality (Feinberg et al., 2016; Feldman et al., 2000). Social support has also been found to alleviate stress, anxiety, and depression throughout a pregnancy (Albuja et al., 2017; Leung et al., 2017; Milgrom et al., 2008). Further, women who have access to a wide and varied range of social support options (such as a partner, family members, and friends) are inclined to attend prenatal care early in a pregnancy (Sidebottom et al., 2017; Rodrigo et al., 2016; Sable et al., 1990; Zambrana et al., 1991);
- "social support available to the dad during the pregnancy and beyond". Whilst social support has been dominantly researched from expecting mothers' perspectives, Carlson et al., (2014) reported that for first-time fathers, a lack of social support can be a contributing factor to challenging outcomes such as paternal anxiety, depression, and stress;

- "epigenetics"—as discussed in Chapter 1, a growing literature base exists that has focussed on the science of epigenetics and the hypothesised effects during the prenatal time on the gene activity of developing prenates (e.g., Anacker et al., 2014; Hruby & Fedor-Freybergh, 2013; Janov, 2015; Roth & Sweatt, 2011; Serpeloni et al., 2017);
- "unprocessed attachment and relational trauma of the mother" (Barrack, 2007);
- "a mother's ability to self-regulate her nervous system to a calm and restful state consistently each day during the pregnancy" (Shonkoff, 2011). Research suggests that when a mother is unable to regulate her nervous system it can impact the baby's ability to self-regulate post birth, which has been linked to difficult temperament in the baby (Beck, 1996; Korja et al., 2017; O'Hara, 2009; Thomas et al., 2017);
- "a mother's perception of her ability to grow, birth, and parent her baby" (Hauck et al., 2016);
- "ability for mothers and fathers to engage with each other and with their babies from a place of secure attachment during the pregnancy and beyond" (Siegel, 2010a; Wachs & Cordova, 2007). The literature supports that when couples do this, there is a positive impact on a growing prenate's brain and psychosocial development (Aktar & Bögels, 2017; Rifkin-Graboi et al., 2009), and can create conditions for secure attachment for babies (Eichhorn, 2012);
- "unprocessed trauma of the mother and/or father relating specifically to sexual abuse". No research was found that specifically measured the impact of unresolved sexual abuse trauma by either parent on a prenate's development, and a baby's development post birth,
- "love being expressed to the prenate from conception onwards" (e.g., via intentional communication from mothers and fathers). The impact of communicating (love) with

prenates directly through the time of pregnancy has not been directly or scientifically measured in existing literature. This was discussed in the literature review of Chapter 6, that focussed on parents being mindful of their thoughts and behaviours, and any potential influence that thoughts and behaviours may have on growing prenates; and

- "a mother's level of self-care during pregnancy and post birth" (Lazarus, 1999).

Of note, "ultrasound exposure" was not collectively seen as an important influence on a developing prenate by the birth professional panellists and was not included as a content topic in recommendations section of this current study. The literature was mixed regarding any specific negative effects on a growing prenate, as a direct result of ultrasound exposure. This is due to challenges associated with understanding the cause-effect relationship between exposure and adverse effects (Beech, 1999). Overall, there was agreement that it is necessary to review the possibility that ultrasound exposure causes harm and, if so, to what extent, and with what frequency can prenates safely be exposed (Donald, 1980).

Examples of possible negative outcomes to ultrasound exposure by prenates have been reported. Specifically, when compared to a control group, 425 Florida and Denver USA-based children exposed to ultrasound, were more likely to have dyslexia when measured at ages seven to 12 (Stark, Orleans, Haverkamp, & Murphy, 1984). Further, in a Calgary, Alberta, Canada-based study that compared 72 children with delayed speech with 142 controls matched on gender, age, and birth order in the family unit, speech-delayed children were two times more likely to have been exposed to at least one ultrasound during gestation (Beech, 1999). No explanation as to why this may have been the case was reported. Newnham, Evans, Michael, Stanley, and Landau (1991) reported a decrease in birthweight of babies exposed to ultrasound; however also found that babies gained the weight post birth with no long-term negative effects. Beech (1999) suggested that it is difficult to predict and measure whether the timing during gestation that prenates are exposed to ultrasound, length

of exposure, and cumulative exposure across multiple ultrasound examinations had an adverse effect on prenates. More recently, in a review of epidemiological studies conducted by Salvesen (2007), it was concluded that experts consistently do not support a correlation between ultrasound exposure and reduced birth weight, nor that statistically significant associations exist between exposure and the detection of dyslexia in childhood.

Given the mixed perceptions in the literature, it was understandable that the birth professional panellists, who may have been aware of the literature given their expert professional status, were also divided when rating "ultrasound exposure" impacts on prenates' development.

**Research Question 2: What Content is Most Effective for Inclusion in PPN Pregnancy Programs?**

Twenty-five of the 48 items relating to research question 1 were derived from both the literature and results from Studies 1 and 2. The remaining 23 items were identified by the birth professional panellists. Overall, results elicited consensus by the panel on 44 of the items, while four items remained non-consensual. As 23 of the 25 items that originated from the PPN literature achieved consensus (92%), this provided strong support for the items being included as recommendations for content in future PPN parenting programs. The item "how to influence gene expression of the baby in-utero" remained non-consensual. As discussed in Chapter 1, epigenetics in the context of PPN psychology is an emerging field (e.g., Hruby & Fedor-Freybergh, 2013; O'Donnell et al., 2014; Serpeloni et al., 2017). Given that the average length of time the birth professional panellists had been active in the PPN field was 23.09 years, it was reasonable to presume that epigenetics was not part of curriculums for many, or all, of the panellists at the time of studying and becoming licenced. Further, depending on the requirements of governing boards to be abreast of current research to maintain credentials, as well as personal interest in staying up-to-date with latest PPN

literature, it could not be assumed that the birth professional panellists from the current study were informed on current trends on factors that may impact prenates during the PPN periods. It may be desirable to include an optional topic, "latest research trends", for parents to select in future PPN parenting programs, and this was previously identified in Chapter 7.

Contrary to the literature (e.g., Landy et al., 2012), the item "sleep training", was not deemed as important content for inclusion in PPN parenting programs by the birth professional panellists. One possible explanation may that because sleep training related to the time post birth, it may not have been seen as critical content during the prenatal time-frame.

For the 23 items contributed by the panellists, consensus was reached on 21 items after the three rounds of the study were completed. The birth professionals perceived the following items as being important for parents to be educated on during pregnancies: (a) tools for expecting parents to "heal their own birth trauma and early imprints" (George et al., 2013); (b) "how to integrate siblings" to the new family structure during pregnancy and post birth (Volling, 2012); (c) "stress management (Shonkoff & Fisher, 2013); (d) "understanding communication cues, reactions, and cries of baby post birth" (Gazmararian et al., 2014); (e) "how to overcome fears relating to pregnancy, birth, and being a parent" (Maldonado-Duran et al., 2000; Wenzel, 2011); (f) "pregnancy and parenting resources available sourced from the local community and evidence-based research" (Brownell et al., 2011); (g) "mindfulness skills for developing healthy and respectful relationships with self, partner, and baby" (Braeken et al., 2017; Duncan & Bardacke, 2010; Duncan et al., 2017; Hauck et al., 2016); (h) "managing expectations of parenting". For example, debunking perfectionism and education on being a 'good enough' parent (Chamberlain, 2013; Winnicott, 2002); and (i) "maternal and paternal perinatal mood disorders" (Coley & Nichols, 2016).

The panel did not advocate for providing skills to parents on "pregnancy, birth, and parenting as a spiritual experience", although there is research that supports this as a topic (Bennington, 2010; Johnson, 2001). Additionally, the item "current population trends in pregnancy, birth, and post birth health" was not seen as an important topic for expecting parents to be educated on. Two possible reasons for this include (a) that the birth professional panellists were largely from the USA only, so comparative world trends may not be known; and (b) the item statement was quite ambiguous, and as a result, panellists may simply not have known how to interpret what the statement meant, leading to a non-consensus outcome.

**Research Question 3: What Content is Ineffective for Inclusion in PPN Parenting Programs?**

Learning what items were perceived to be ineffective for inclusion in future PPN parenting programs by birth professionals was considered to be just as important as knowing what to include to ensure relevancy of content. Ten items were generated and all attained consensus. Half were in the direction of *agreement* and the remaining half being polarised in the direction of *disagreement*. That is, the panel members disagreed that five items should be excluded, instead advocating for parents to receive information about the topics in future PPN parenting programs.

A theme emerged from across the five items that attained *agreement* consensus. Specifically, birth professionals did not advocate for any content that is "biased, judgemental, or has an agenda". This applied to "having preference for a birth plan or birth-related products"; "ascribing to a particular model of birthing", and "any content (regardless of topic) that may disempower either the mother or baby". This was consistent with literature (Barrett et al., 2015; Bryson, 2013; Malone, 2014; Taylor et al., 2012).

There was aligned *disagreement* by the panel that the topics of "complications", "circumcision", "caesarean section", "weekly milestones of fetal development", and "when to

take baby to the hospital/clinic/doctor post birth" should *not* be included as content. This finding showed that the birth professional panellists supported the inclusion of the abovementioned topics that are grounded in traditional medical and obstetric perspective (e.g., Fedor-Freybergh, 2002; Lyman, 2011b), as content in future PPN parenting programs.

**Research Question 4: What Current Practices and Theories Relating to Conception, Pregnancy, Birth, and Post Birth are of Value to Include in Future PPN Parenting Programs?**

Based on the consensus results from this question, current practices and theories relating to conception, pregnancy, birth, and post birth were disseminated across four categories. The items under each category were supported by existing literature, both traditional and emerging. Each of the items has been included as recommendations in Appendix U for content inclusion in future PPN parenting programs. The categories and related items are:

**Birth related.** Items included: "midwifery model of care" (Berg, Olafsdottir, & Lundgren, 2012; Polomeno, 2009; Rooks, 1999), "sacred hour: skin-to-skin contact" (Essa & Ismail, 2015; Phillips, 2013), "informed choice for circumcision" (Ressler-Maerlender & Sorensen, 2005; Sardi & Livingston, 2015), "natural-birth practices" (Bergstrom et al., 2009; Consonni et al., 2010; Cyna et al., 2006; Dick-Read, 1944; Lamaze, 1958; Hauck et al., 2016), and delayed cord clamping (Mercer et al., 2006; Oh et al., 2011).

**Post birth related.** Items included: "infant mental health" (Fedor-Freybergh, 2002; Glover & Hill, 2012; Oberlander et al., 2008; Renzaho & Oldroyd, 2014; Smart et al., 2015), and "postpartum mood disorders" (Greeson et al., 2014; Leigh & Milgrom, 2008; Muller, Teismann, Havemann, Michalak, & Seehagen, 2013; Tohotoa et al., 2012).

**Theory.** Items included: "PPN psychology" (Chamberlain, 2013; Hruby & Fedor-Freybergh, 2013; Lyman, 2011b; McCarty, 2009; Verny & Weintraub, 2002b; Weinstein,

2016), "bonding and attachment theory" (Chamberlain, 2013; Eichhorn, 2012; Fonagy, 2001; Klaus, Kennell, & Klaus, 1995; Kluny, 2011; Koleva et al., 2011; Neuhauser et al., 2007), and "intuitive knowing and innate mothering wisdom and how to tap into it" (Lewis-Rowley et al., 1993)

**Emerging fields.** Items included:

- "emotional development of the prenate in-utero" (Chen & Zhang, 2011; McCarty, 2013; Nathanielsz, 1999),
- "consciousness of a prenate and neonate" (Barrack, 2007; Chamberlain, 2003, 2011, 2013, 2014; Verny & Kelly, 1981),
- "epigenetics" (Anacker et al., 2014; Janov, 2009; Knopik et al., 2012; Lipton, 2008; Serpeloni et al., 2017; Zucchi et al., 2013),
- "conscious parenting" (Chamberlain, 1995, 1998, 1999a, 2013; Lipton, 2008),
- "mindfulness for parenting" (Braeken et al., 2017; Duncan & Bardacke, 2010; Dunn et al., 2012; Goodman et al., 2014; Hauck et al., 2016; Isgut et al., 2017; Kluny & Dillard, 2014; Michaud, 2012; Muller et al., 2013; Siegel, 2010a),
- "affect regulation of self, as a couple, and for baby" (Beck, 1996; Belsky et al., 1991; Blasco, 2003; Chitty, 2013; Feinberg et al., 2015; Korja et al., 2017; Porges, 1996, 2009; Roggman et al., 2004; Siegel, 2010b; Thomas et al., 2017; Tremblay & Soliday, 2012),
- "prenatal and birth trauma imprinting" (Chen & Zhang, 2011; Harris & Seckl, 2011; Lefman & Combs-Orme, 2014; O'Donnell et al., 2012; Sandman et al., 2012; Sandman & Glynn, 2009), and
- "neuroscience" in context of developing prenates and neonates (Porges, 2004; Shapiro et al., 2006; Siegel, 1999, 2010b, 2011).

There were some inconsistencies between the literature and panellist findings with regards to current practices and theories relating to conception, pregnancy, birth, and post birth that may be of value to include in future PPN parenting programs. Specifically, the panellists did not reach consensus on five topics that the literature was supportive of: "conscious conception" (Borg, 1986; Chamberlain, 2013; Elsinga et al., 2008; Lipton, 2008, 2012), "bonding through meditation" (Duncan & Bardacke, 2010; Hauck et al., 2016; Vieten & Astin, 2008), "Somatic Experiencing" (Lovkvist, 2012), (d) "CBT for parenting" (Field et al., 2010, 2012), and "understanding the social nervous system (as part of Porge's Polyvagal Theory) when pregnant and post birth" (Porges, 2009; Porges & Furman, 2011).

**Research Question 5: What Factors May Contribute to Fathers/Partners Attending less Pregnancy and Parenting Related Sessions/Programs than Expecting Mothers?**

All but one item attained consensus and each of the consensus-based results were in alignment with empirical evidence. Examples (in no particular order) included:

1. "work schedule" (Humphries & Nolan, 2015);
2. "lack of support from workplaces to grant time off to attend PPN classes". One Turkey based study attempted to counteract this challenge by offering an in-workplace PPN parenting program for fathers only, and was previously discussed in Chapter 2 (pp. 42-43). Results showed that fathers from the intervention group were significantly ($p<.01$) more likely, than those in the control group, to attend antenatal visits, actively prepare for the birth, and support breastfeeding, than the control group. The researchers did report that they experienced resistance from some employers to release the fathers to attend the program in work hours, even though the program was facilitated in the workplace (Sahip & Turan, 2007);
3. "PPN parenting service provision targeting content to mother and baby only" (Carlson et al., 2014; Davis et al., 2016; Edvardsson et al., 2011);

4. "societal and cultural norms that favour pregnancy being a woman's role" (Alio et al., 2011; Davis et al., 2016 );
5. "general lack of understanding of the importance of the role of the father in the wellbeing of the prenate" (Bäckström et al., 2017; National Nursing Research Unit, 2013; Salzmann-Erikson & Eriksson, 2013; Sheriff & Hall, 2011; Shribman & Billingham, 2008);
6. "perception by birth professionals who facilitate classes that expecting fathers generally have a lack of desire to participate in classes" (Humphries & Nolan, 2015; Sheriff & Hall, 2011; Shribman & Billingham, 2008);
7. "fear by men of becoming a father, the birth process, and/or being judged in someone by facilitators or other attendees of PPN sessions" (Carlson et al., 2014; Redshaw & Henderson, 2013; Tohotoa et al., 2012);
8. "fathers not physically experiencing a pregnancy, which is perceived to dilute connection and communication with the prenate, which can lead to a perceived lack of need to attend classes" (e.g., Habib & Lancaster, 2006);
9. "lack of role identity by an expecting father" (Alio et al., 2013); and
10. "poor paternal leave policies" that may reduce fathers' levels of motivation to engage in parenting preparation (Axness & Strauss, 2007; Bond et al., 2005; Jongen et al., 2014).

As identified previously in Study 3's discussion related to this research question, further research could be undertaken to explore specific ways that barriers to fathers attending PPN parenting sessions, as well as being involved during pregnancies from the earliest moments, could be overcome. The aim for the future is to genuinely include expecting fathers and meet their needs in PPN parenting programs.

No specific literature was found that specifically measured the one non-consensus item, "women feel comfortable talking to other women so need a women-only environment". As a result, a comparison with literature findings has not been made.

**Research Question 6: What Logistical and Program Delivery-Related Factors Are Most Effective when Considering PPN Parenting Programs?**

As with Study 3, eight key sub-research questions, derived from the literature relating to adult education and PPN parenting programs, were examined in Study 4. The intention of doing so was to maximise the inclusion of as many relevant recommendations as possible for future programs. Each sub-research question is addressed below.

**a. Which groups of parents may benefit from having access to PPN parenting programs?** All 15 items rated by the birth professional panellists for this question attained agreement consensus, which was consistent with existing literature (Baytop, 2006; Coley & Nichols, 2016; Feinberg et al., 2015; Mortensen et al., 2012; Neuhauser et al., 2007; Plantin et al., 2011; Renzaho & Oldroyd, 2014).

A further two categories of people who may benefit from having access to PPN parenting programs were generated by the panel, along with a range of related items. The first category was parents: "with trauma history", "expecting multiples", "adopting", and "receiving a child via surrogacy". Whilst current literature does not discuss these target groups for PPN parenting programs, it may be of value to explore the specific needs of parents from these categories. Doing so may assist in ensuring programs are designed to address any particular needs parents from these cohorts may have. The second category advocated for non-parent groups to attend PPN parenting programs, and examples included: "primary support people (e.g., grandparents)", "school-aged children", "birth professionals", and "birth educators". These results indicated a perceived need for expecting parents,

regardless of circumstance (e.g., “first-time parents”, “teens”, “singles”, “same-sex”, and “adopting”) to attend PPN parenting programs.

**b. Who should attend the sessions of PPN parenting programs?** This sub-research question related directly to mothers and fathers, irrespective of cohort type.

As reported in Study 3, the literature consistently supports that both mothers and fathers should be targeted to attend PPN parenting programs (Adamsons, 2013; Arcus, 1995; Billingham, 2011; Feinberg et al., 2015; Halford & Petch, 2010; Pinquart & Teubert, 2010), and that some sessions should be dedicated exclusively for mothers (Jongen et al., 2014; Renzaho & Oldroyd, 2014), and others exclusively for fathers (Davis et al., 2016; Deslauriers et al., 2012; Tohotoa et al., 2012; Walsh et al., 2014). The birth professional panellists concurred.

When the inclusion of “siblings” in PPN parenting program sessions was considered, the panellists did not consistently perceive their attendance to be important. This finding was not consistent with literature that supported the importance of parents knowing how to integrate siblings to the new family structure during pregnancy and post birth (Volling, 2012).

**c. What stage of a pregnancy is most effective for PPN parenting programs to start and end?** Consistent with the literature and findings from Study 3, gaining clarity on the most effective time for expecting parents to begin PPN parenting programs remained elusive, with a wide array of possible start times during pregnancies being identified.

The birth professional panellists’ ideas varied between “no set time—when parents are ready and motivated”, “preconception”, “trimesters one, two, and three”, “after the first ultrasound”, “after quickening”, to the “time during the teenage and early adulthood years in preparation for pregnancy”. Whilst consensus was reached for the item “as soon as the couple discover they are pregnant”, no evidence-based studies were found to support this. One

explanation may be that this non-specific timeframe would be difficult to measure in clinical studies. Consistent with the literature, consensus was also attained for both "trimester one" (e.g., Edvardsson et al., 2011; Godin et al., 2015), and "late teens/early adulthood prior to any pregnancy" (Barrett et al., 2015; U.S. Department of Health and Human Services, 2017).

As reported in Study 3's discussion for this sub-research question, a review of the literature revealed a wide variation in start times of PPN parenting programs. Examples included: preconception (Pinquart & Teubert, 2010), trimester one (Edvardsson et al., 2011; Godin et al., 2015), trimester two (Dunneram & Jeewon, 2015; Feinberg et al., 2015), trimester three (Jaddoe, 2009), and post birth (Tohotoa et al., 2012). Due to the variation in findings, an opportunity exists for research to be conducted utilising a consistent PPN parenting program as the independent variable measuring program effectiveness based on start time of the program, the dependent variable.

Consistent with the findings reported in Study 3, agreement was not reached for a most effective time for PPN parenting programs to end. The birth professionals from Study 4 as well as the related literature, identified an array of recommendations that included "before birth" (Pinquart & Teubert, 2010), "within three months post birth" (Jongen et al., 2014), "up to six months post birth" (Trillingsgaard et al., 2012), "up to 12 months post birth" (Brownell et al., 2011), and "three years post birth" (Baytop, 2006). Such diversity in findings suggested the possible need for flexibility in the timing for programs to end that are determined based on parents' needs.

**d. How can information in PPN parenting programs most effectively be presented/delivered?** Each of the nine items included in this question were collated from the literature. The panellists' opinions were in alignment with both the results from Study 3 and the research for all but two of the items. Specifically, "lecture style" and "manual/workbook" (Landy et al., 2012; NWCPHP, 2012) were not perceived as being effective stand-alone

presentation/delivery formats of information in PPN parenting programs. Both adult education (NWCPHP, 2012) and PPN parenting program specific research (Zhou, 2013) supported the inclusion of manuals/workbooks as one way to disseminate information, as long as it was combined with other delivery methods, such as videos and two-way discussions. Additionally, this combined approach supports the utilisation of different learning styles (introduced in Chapter 7) to enhance learning outcomes of adults in general education settings (Alalshaikh, 2015; Gibson, 2016), and in PPN parenting programs (Zhou, 2013).

The birth professional panellists advocated for the inclusion of a myriad of formats when delivering PPN parenting programs that were consistent with research findings. Examples included: (a) "experiential options such as role playing, skill practice, and facilitator modelling of skills" (Dion, 2005; Dunneram & Jeewon, 2015; Ferguson & Vanderpool, 2013; Lotrecchiano et al., 2013); (b) "home-practice activities" (Bryson, 2013; NWCPHP, 2012); (c) "individualised sessions where couples can select modules relevant to them as well as receive core modules" (Arcus, 1995; Billingham, 2011; Quirk et al., 2014; Pinquart & Teubert, 2010 ); and (d) "content modules presented via an array of formats", such as video, group discussion, activities, and printed resources (Arcus, 1995; Artiele-Pinedo et al., 2017; Halford & Petch, 2010; Neuhauser et al., 2007). The items that reached consensus were included in the recommendations for future PPN parenting programs.

**e. What is the most effective location/platform for delivery of PPN parenting programs?** The results highlighted that numerous locations were perceived as being effective for delivery of PPN parenting programs, each of which were supported by the literature. They included: "training room environments" (Deslauriers et al., 2012; Robbers, 2009), "home-visits" (Castillo et al., 2011; Ferguson & Vanderpool, 2013; Jongen et al., 2014; Landy et al., 2012), and "community centres" (Raikes et al., 2005).

However, there were clear inconsistencies between panellist views and the literature for four locations, where the literature advocated for the location and the panellists did not. The items were: "hospital settings" (Bayop, 2008; Coley & Nichols, 2016; Tohotoa et al., 2012), "online" (Cunningham et al., 2017; Gazmararian et al., 2014; Godin et al., 2015; Halford, 2004; Quirk et al., 2014), "within workplaces" (Robbers, 2009; Sahip & Turan, 2007), and "self-guided home based with downloadable worksheets and manual" (Halford, 2004; Petch et al., 2012).

One possibility for the polarised views may be that location of program facilitation was not perceived by birth professionals to be of particular importance for PPN parenting programs to be effective. Two factors contributed to this rationale. The first was that the panellists identified only one additional item (i.e., "in a parent-to-parent mentoring environment") for suggested location compared to what was provided from the research. The second was that in round 1 of the study, one panel member made a comment that PPN parenting programs could be delivered in one or all of the locations identified as items for consensus rating, and each would *draw parents*. That is, parents would attend regardless of location.

**f. Who ought to deliver PPN parenting programs?** The birth professional panellists reached consensus on six facilitator types that were supported by the literature: "midwives" (Dunneram & Jeewon, 2015; Jongen et al., 2014; Kearney et al., 2017; Nolan, 2017; Titaley et al., 2010; Tohotoa et al., 2012), "childbirth educators" (Coley & Nichols, 2016), "doulas" and "parents" (Heath & Palm, 2006; Korfmacher et al., 1999; Nolan, 2017), "a collaboration of qualified individuals" (Feinberg et al., 2015; Robbers, 2009), and "qualified people who are caring, non-judgemental, confident, engaging, approachable, and skilled" (Landy et al., 2012; Nolan, 2017).

There was inconsistency between panellist views and the literature when considering several items, where in each instance the literature was supportive of the facilitator type and the birth professionals were not. The specific items were: (a) "elders in the community" delivering sessions, where the research supported elders facilitating programs (Jongen et al., 2014). One plausible explanation for the discrepancy in result between the panel and the literature, may be that the passing down of parenting information between generations was perceived by the panellists as being outdated, as it was a common practice between the 1300s and 1800s (Lewis-Rowley et al., 1993); (b) "OB/GYNs" (Brixval et al., 2016; Zwelling, 1994); (c) "nurses" (Coley & Nichols, 2016; Edvardsson et al., 2011; Glover & Sutton, 2012; Robling et al., 2016); and (d) "anyone with skills to coach, offer support, encouragement, be culturally sensitive, and be passionate for material being presented" (Alalshaikh, 2015; Bryson, 2013; NWCPHP, 2012). It may be that birth professionals considered having credentials in pregnancy, birth, and post birth care as important criteria to be eligible to facilitate PPN parenting programs. Attaining certainty would require specific questions to be asked in future studies.

It was unexpected that the panel did not endorse either "nurses" or "OB/GYNs" as facilitators of PPN parenting programs. Without having verbatim data as to why this was the case, any interpretation would be pure speculation. Therefore, it is recommended that future studies ask participating panel members to provide reasons for their stated opinions. This was not undertaken in the current research to minimise responder fatigue, as the questionnaires used throughout the three rounds were already lengthy.

Panellists were united in their agreement that "academic researchers" *should not* facilitate programs, a finding that was consistent with Study 3 results. Research that examined the use of "academic researchers" as facilitator cohorts for the delivery of PPN parenting programs was not found.

**g. What is the most effective length of each session and time between each session in PPN parenting programs?** Consensus was not reached on what constituted effective length of sessions in PPN parenting programs. Additionally, when the amount of time between sessions was evaluated, consensus was met on two items that were "between five and seven days" and "one week", which indicated very similar categories. The inability for agreement to be reached on ideal time frames across both topics was in alignment with the literature. More specifically, when individual session length was explored, the research varied between one hour (Halford & Petch, 2010; Tohotoa et al., 2012), two hours (Carmody & Baer, 2009; Collins & Fetsch, 2012; Halford & Petch, 2010; Jaddoe, 2009), three hours (Cowan & Cowan, 1995; Sahip & Turan, 2007; Trillingsgaard et al., 2012), and four hours (Bayop, 2006). With the exception of "four hours", all were identified by the panellists, though no one item was agreed upon as most effective.

Options identified in the literature for effective amounts of time between sessions in PPN parenting programs, included two weeks (Akinbami et al., 2001; Cowan & Cowan, 1995; Landy et al., 2012), two months (Bayop, 2006), and three months (Cowan & Cowan, 1995). Whilst "two weeks" was also included as an item by panellists, the expert birth professional group as a whole did not reach consensus. The lack of clarity on what constituted effectiveness, by both parent and birth professional panellists, as well as the literature, suggested that session length and time between sessions were seemingly not considered to be critical factors for consideration when designing, developing, and delivering PPN parenting programs.

**h. What is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?** Consistent with the previous time-related questions, no clarity was gained when exploring most effective overall length of PPN parenting programs. This outcome was consistent with the findings from Study 3 and the literature. Of the 11

items identified by the birth professional panellists (e.g., “six weeks”, “eight weeks”, “12 weeks”, “trimester one until three or six months post birth”), none were agreed upon unanimously. Examples from the literature of recommended PPN parenting program length included: nine months in total, spanning the three trimesters of gestation (Zwelling, 1994); trimester three until three months post birth (Cowan & Cowan, 1995); preconception until six months post birth (Feinberg et al., 2015); and trimester three until two years post birth (Landy et al., 2012). The polarised results between panellist views in both Studies 3 and 4, as well as the literature, supported the possibility that length of program may not be considered a factor of effectiveness when PPN parenting programs are considered.

**Limitations**

There were a range of limitations that emerged from Study 4. The first three also related to Study 3 and were discussed in detail in the previous chapter. In the essence of brevity a shortened version is included here as a recap only. Firstly, even though consensus was attained on 157 of the 242 items, the findings were restricted to the birth professional panellists included in the dissertation project study only, and may not be representative of birth professionals’ views in general. Research has suggested that consensus findings from Delphi methodology studies do not lend themselves to being interpreted as the most accurate outcomes being found (Dawson et al., 2015; Hasson et al., 2000). This limitation raised the question as to whether experts, who viewed the invitation to participate in Study 4 and chose not to [participate], would hold the same or differing perspectives on the questionnaire questions presented. This subjectivity may have diluted the representativeness of the findings (Keeney et al., 2006; Ward et al., 2014) beyond the birth professional experts who represented the panel in Study 4. As identified in Study 3, this limitation was somewhat reduced by data being compared to the literature relating to design, development, and

delivery factors relating to adult education in general, and in the context of PPN parenting programs.

Secondly, as recruitment of panellists involved a non-random sampling procedure, albeit in alignment with cited Delphi methodological practice (Dawson et al., 2015; Hasson et al., 2000; Ward et al., 2014), the representativeness of findings to a wider birth professional population was not assured. Also, as the sample was dominantly from the USA (unintentionally, as the recruitment advertisement was distributed on global social media), it remained an unknown as to whether the results found were valid for birth professionals from other nations, be it first-world or developing countries. However, this shortcoming is commonly reported in the Delphi methodology literature (e.g., Desroches et al., 2015; Phillips et al., 2014).

Thirdly, the lack of an agreed upon best-practice relating to consensus percentage level led to an *a priori* level of 75% being chosen. Whilst this percentage was guided by the literature (e.g., Dawson et al., 2015; Hejblum et al., 2014; Keeney et al., 2006), consensus results would have been different if either lower (e.g., 70%, Meshkat et al., 2014; Sumsion, 1998), or higher (e.g., 85%, Falzarano & Pinto Zipp, 2013; Ward et al., 2014) consensus levels, had of been chosen. Even though higher and lower *a priori* percentages are as supported by the literature as the 75% threshold, this highlighted that results can be manipulated based on consensus percentage initially selected by a researcher, and may have an adverse effect on the strength of conclusions drawn.

In addition to the abovementioned three limitations that were consistent with those found in Study 3, there were two more that were specific to Study 4. Firstly, one panellist raised a concern that by including items drawn from the literature in seven of the questions in round 1 of the questionnaire, there was a risk of bias. Of specific concern was that the panellists may have agreed with the items listed, rather than being truly open to sharing their

own views, which if imparted may have added to literature as well as further validated best-practice options for PPN parenting programs. The panellist shared that the current study may have been subjected to reduced empirical value as a result. The possibility for this outcome being true was also top-of-mind to the student researcher, and had been validated in the literature (Hasson et al., 2000). That said, as discussed in Chapter 7, a hybrid version of the Delphi methodology is common practice where the potential for respondent fatigue may exist (Duffield, 1993; Hasson et al., 2000; Iqbal & Pipon-Young, 2009; Jenkins & Smith, 1994; Tester, 1992). This was deemed to be the case in both Studies 3 and 4 due to the large number of questions included in the online questionnaires. The concerned panellist was contacted via email and was provided with a detailed explanation justifying why the hybrid version of the Delphi methodology was utilised. The panellist in question went on to complete all three rounds of the study, indicating the explanation provided quelled their concern.

Secondly, three panellists identified that some of the questions included in the questionnaire were too broad to enable the identification of best-practice options, for future PPN parenting programs; the specific questions were not identified. It was further stated by the same three panellists, that answers provided were conditional, based on factors such as: the amount of resources (e.g., financial, knowledge, platforms for delivery) available for program design and delivery, accessibility to a program by expecting parents, who the PPN parenting program was targeted to specifically, unique and specific goals of both the facilitator and parent participants in programs, level of expertise of facilitators, and the needs of the individual attendees.

The reported outcomes for the panellists who raised this concern was that they identified not being able to differentiate clear responses to questions, largely because they agreed with almost all items, depending on the factors listed in the paragraph above. This

limitation could potentially be overcome in future research by the administration of a series of Delphi methodology studies, or focus groups. It is proposed that each study would use an identical questionnaire, while targeting different parent cohort groups (e.g., "teens", "those from disadvantaged backgrounds", "same-sex", "adoptive parents", "expecting multiples", "with trauma history", "and first-time parents"). This would enable clarity to potentially be attained on items perceived as being most effective for inclusion in PPN parenting programs for each of the specific target groups included in the studies.

Whilst the limitations identified were present in the study, the findings from the birth professional panellist group, along with the parent panellist recommendations from Study 3, did offer insights into factors that may be effective for 21st century PPN parenting programs.

**Recommendations**

The current study represented the final study of the dissertation project. Key recommendations from the expert birth professional panellists are detailed in Appendix U. The recommendations included were formulated from the items that attained consensus across the three rounds of study 4. Recommendations were not itemised in any particular order of importance and were exhibited under the same simple, logical headings used in Study 3, for ease of understanding.

**Future Research**

Numerous recommendations for future research as well as challenges with the current study were highlighted in the discussion section above, and are summarised below. Addressing the ideas presented in future research may potentially enhance the accuracy of best-practice recommendations to be considered when designing, developing, and delivering future PPN parenting programs. Future research could consider asking expert birth professionals directly about: (a) specific ways that love can be communicated between expecting parents to positively impact the development of prenates, and that can be reliably

and validly measured; (b) strategies and solutions that may be realistic, and that may genuinely work to prevail over existing barriers that negatively impact expecting fathers' attendance to PPN parenting programs; and (c) why "nurses" and "OB/GYNs" were not perceived to be appropriate/effective facilitators for PPN parenting programs, given they are educated and licensed specialists in the PPN field.

One final recommendation raised in the discussion was to learn more about the specifics of what may make PPN parenting programs effective for different parent cohort groups (e.g., "teens", "first-time parents"). This could be achieved by using the same set of questionnaires as presented in Studies 3 and 4, and facilitating one Delphi methodology study (or focus group) per parent cohort of interest, to determine needs by cohort group. While a time-consuming and labour-intensive process, this may allow for more targeted and needs-based PPN parenting programs to be created.

**Next Chapter**

The next chapter provides a detailed comparison of findings between the expert parent and birth professional groups. Areas of consistency and differences between ideas recommended by the panellist groups are explored, and evaluated, against existing adult education and PPN parenting education literature. The goal of comparing the findings from Studies 3 and 4 was to ensure the final list of recommendations included as an outcome of this dissertation, was based on findings that could be generalised as widely as possible to parents, birth professionals, as well as adding to the existing literature.

# Chapter 9: Comparative Delphi Results between Expert Parents and Birth Professionals

## Introduction

The intention of this chapter is to compare the findings between the parent and birth professional panellists from Studies 3 and 4, in the context of the five research questions that were relevant to both groups. Research question 4 from each of the Delphi methodology studies has not been included in this chapter as it was unique for each group, hence, comparisons could not be made. Additionally, as the literature on adult education, adult education in the context of PPN parenting programs, and the Delphi methodology was presented in Chapter 7, it is not discussed here. Lastly, as the literary stance in relation to the results presented from both Studies 3 and 4 was detailed in the previous two chapters, it has not been included again. This chapter presents: (a) the bivariate correlation results that indicated the strength of the relationship between consensus ratings on the 51 literature-derived items spanning six question categories from both panellist groups; (b) an outline of the key similarities and differences in results between the two panellist groups, across the five relevant research questions; (c) a recommendations list detailing factors for inclusion in future PPN parenting programs, derived from the combined feedback of participating parent and birth professional panels from Studies 3 and 4; and (d) an outline of how the recommendations presented can be put into practice when designing, developing, and delivering future PPN parenting programs.

## Strength of Relationship of the Consensus Ratings between the Two Expert Groups

As detailed in chapters 7 and 8, six questions presented in the online Delphi methodology questionnaires included 51 literature-derived items for consensus rating by panellists. The specific questions and related items are summarised in Appendix V.

Each of the 51 items attained consensus by both the parent and birth professional panellists. That is, the items were rated as important for consideration when developing future PPN parenting programs by ≥ 75% of panellists overall. Of interest was the strength of the relationship between the overall consensus ratings (of the 51 items collectively) recorded by the two panellist groups. To investigate this, the bivariate correlation value was calculated using IBM SPSS Statistics 24.

Preliminary analyses were conducted to check that the assumptions relating to independence of observations, normality, linearity, and homoscedasticity were not violated (Pallant, 2013). Normality was not met for either group. Specifically, the Shapiro-Wilk test of normality for the parent group ($W$ (51) = .602, $p$ = .000), and birth professional group yielded a significant result ($W$ (51) = .540, $p$ = .000), indicating that the data was not normally distributed. Visual inspection of the normal QQ-plot and detrended QQ-plots provided confirmation, and was evidenced by two outlier scores for each expert group that appeared to skew normality. As a result, and in accordance with the literature, no further assumption checking was required, as when normality has been violated, the more conservative Spearman's rho correlation coefficient is recommended as opposed to Pearson $r$ correlation (Allen, Bennett, & Heritage, 2014; Pallant, 2013).

The correlation between the overall consensus ratings by the two Delphi groups was high. This was denoted by a positive and strong correlation ($r_s$ = .678, $p$<.001, two-tailed, $N$=51). This result suggested stability in the findings with very little fluctuation observed between the perceptions extracted from the literature and those identified by the expert parent and birth professional panellists. This strong correlation added validity to the inclusion of the items in the final recommendations for consideration when developing future PPN parenting programs.

**Research Question 1: What Factors May Impact Both the Development of Prenates during Gestation and Influence who Babies Become Post Birth, that Expecting Parents Would Benefit from Learning About?**

Fourteen of the 16 items drawn from the literature pertaining to research question 1 attained agreement consensus by both expert panels. All have been included in the recommendations list that combines findings from the parent and birth professional groups (refer to Appendix W). Additionally, whilst the 75% *a priori* criteria was not met for the item "age of mother", both panellist groups' responses trended towards *disagreement*, and the item was not included in the recommendations for a topic of discussion in future PPN parenting programs.

Of the 11parent panellist generated items and 23 items identified by the birth professional group, which attained within-group consensus, only two were similar across both expert groups. They were "social support available to the mother during pregnancy and beyond", and "a mother's and father's perception of their ability to be a 'good enough' parent". The diverse range of responses uniquely provided by both expert panellist groups indicated the importance of having included the two Delphi methodology studies in this research project. Thus, a richer breadth of data was attained than would have been achieved if only one of the expert panel cohorts had been involved.

**Research Question 2: What Content is Most Effective for Inclusion in PPN Pregnancy Programs?**

Twenty-five items were drawn from the literature and presented to both panellist groups in Studies 3 and 4 for rating. *Agreement* consensus was attained across both groups on 20 of the 25 items, and all were included in the combined recommendations list. This indicated robustness between the literature and perceptions across both expert panels, which enhanced confidence in including the items for possible content categories in future PPN

parenting programs. *Disagreement* consensus was reached across both groups for a further one item, "how to influence gene expression of the baby in-utero". Even though epigenetics is an emerging research topic (e.g., Anacker et al., 2014; Appleton et al., 2013; Serpeloni et al., 2017; Weinhold, 2012), based on the Delphi methodology results, it appeared that neither the lay parent group nor birth professionals involved in the current studies were familiar with the literature, or if they were, they did not ascribe to the concept.

There were several notable differences in the literature-originated item findings between the two groups. Firstly, the item "sleep training" was deemed to be important content for inclusion in PPN parenting programs by the parent panellists but not by the birth professionals. One hypothesis for the difference in opinions was that, perhaps, parents were more motivated to know about this as they had the reality of creating a daily sleep routine with babies. In contrast, the birth professional panellists, one third of whom identified as not having children (see Table 35, p. 256), may not have a felt-sense of the reality of a non-sleeping baby.

Further, the panel of parents did not reach consensus for three items: "education on conscious awareness of baby in-utero", "role identity through the transition to parenthood", and "being aware of generational parenting patterns". However, the birth professional group collectively perceived each of these items as important for content inclusion in future programs, and the items were included in the recommendations list.

In addition to the items presented from the research, both expert panel groups identified a myriad of elements as suggestions for content that may be effective, and supportive, of the needs of parents considering attending PPN parenting programs in the future (see Appendices J and S). Several items that attained consensus were similar in theme across the two groups and included: "how to be a 'good enough' parent post birth", "stress management skills", "postnatal mood disorders", "processing skills for existing emotions and

trauma relating to birth imprints and any pregnancy related losses", "local and community-based pregnancy and parenting resources", and "education on birth and care options available".

Between the two groups, an additional 28 panellist-identified items reached consensus (13 items from the parent group, and 15 items from the birth professionals). This added a depth to the recommendations list (see Appendix W) which would not have been achieved had both groups not been included.

**Research Question 3: What Content is Ineffective for Inclusion in PPN Parenting Programs?**

Gaining clarity on *what not* to include in future PPN parenting programs provided the opportunity to maximise recommendations that were based on current perceived need. Whilst no predetermined literature-based items were presented to the panels for this research question, there were consistent themes in the findings across both groups of experts.

Firstly, the participating panellists collectively advocated *against* "content that is presented with bias for any particular model of birthing". Secondly, "any topic that disempowers, judges, condescends, takes away parental choice, or that promotes invasion of a woman's ability to birth" was not considered a welcome inclusion in PPN parenting programs of the future. It is recommended that this clear preference be top-of-mind for any persons or organisations involved in the design, development, or delivery future PPN parenting programs. That is, for each content topic included in a program, a mechanism to gauge for neutrality could be incorporated in how content is worded in written manuals, resources, websites, advertising material, as well as how facilitators deliver the material to attendees of programs. Neutrality could be achieved in two-ways (a) via benchmarking best-practice that aligns the design and development of programs with recommendations from up-to-date literature (as discussed in Chapter 7); and (b) by measuring consistency in how PPN

parenting programs are facilitated. This could be achieved through a mix of participant feedback forms being completed post-program (NWCPHP, 2012), as well as facilitators being observed, audited, and if needed retrained by a content expert (DeBord, 2016).

Research question 5 is discussed next as research question 4 was different for both expert panels and comparison was not possible.

**Research Question 5: What Factors May Contribute to Fathers/Partners Attending less Pregnancy and Parenting Related Sessions/Programs than Expecting Mothers?**

No predetermined items were presented to either expert panel group for this research question. The parent panellists generated 17 items and the birth professional group identified 18 items. Of these, three items attained consensus that were comparable between the cohorts. They were "work schedules", "general lack of understanding of the importance of the role of the father", and "societal/cultural norms and perceptions that pregnancy and birthing is "mum's role/women's business".

There were an additional six comparable items where both groups identified the same perceived barrier that attained polarised outcomes. The birth professional cohort reached consensus whilst the parent panellists did not for the following items: (a) "fear" (e.g., of the unknown, becoming a father, having to discuss feelings, of becoming overwhelmed, of being judged by other men, of being uncomfortable); (b) "perceived general lack of desire and an unwillingness of men to participate in classes"; (c) "fathers not directly feeling the pregnancy, leading to less connection with role of being a father"; (d) "poor paternal leave policies placing less importance on fathers and reducing motivation by fathers to engage"; (e) "fathers may feel left out and as though they do not belong when they attend class"; and (f) "information in many PPN classes is targeted towards mother and baby only, with little direct content targeted to the role of father". Therefore, fathers felt that the content was not relevant to their needs.

All items that attained consensus were included in the recommendations list (Appendix W), in the context of solutions that need to be explored that will ensure expecting fathers are catered for in future PPN parenting programs. It is acknowledged that with the inconsistency in volume of results between the two expert panel groups, it may be necessary to advance the current study by conducting further exploratory research. This could take the form of focus groups or one-on-one interviews, using samples of fathers who have attended PPN parenting programs, and who experienced challenges and dissatisfaction. This would potentially allow for the identification of very specific issues, as well as creating the space for the participating fathers to identify what would be effective, meaningful, engaging, and useful, instead.

**Research Question 6: What Logistical and Program Delivery-Related Factors are Most Effective when Considering PPN Parenting Programs?**

Consistent with the discussion presented in Chapters 7 and 8, the eight key sub-research questions developed from the adult education literature are discussed separately below, comparing key findings between the parent and birth professional expert panels.

**a. Which groups of parents may benefit from having access to PPN parenting programs?** There was strong agreement across both expert groups for the six items presented from the literature. All but one, "existing parents who are pregnant again" was agreed upon by the parent expert group, and all attained consensus by the birth professional panel (see Appendix W).

The parent group identified three items (e.g., "parents wanting a home birth", "any expecting parent who wants to attend", and "parents wanting a vaginal birth after a previous caesarean birth"); and the birth professional panel identified a further eight items (e.g., "parents with trauma history", "parents expecting multiples", "non-parents: birth professionals and educators"). Each item was met with consensus amongst the respective

group panel members. All items identified were exclusive to the expert panel that shared them, providing a rich depth of recommendations for future target groups.

**b. Who should attend the sessions of PPN parenting programs?** Of the five literature-derived items, consensus was reached on all, by both groups with the exception of "both mum and dad/partner with some sessions for mum only". This item was not agreed upon by the expert parent panellists. Regardless, each of the five items progressed to the recommendations list due to the unanimous agreement rating by the birth professional cohort.

Both expert panels initially identified "siblings" as a possible target group for attendance in PPN parenting programs. However, by the end of the three rounds, consensus was not achieved by either group. As a consequence, this item has not been included in the recommendations list.

Both panellist groups independently identified "grandparents" and "support people" (e.g., extended family members) as additional target attendee groups. Consensus was reached for these two items by the birth professional group, and both items were included in the recommendations list.

**c. What stage of a pregnancy is the most effective time for PPN parenting programs to start and end?** As identified in Chapters 7 and 8, determining the most appropriate time-frames for expecting parents to start and finish PPN parenting programs remained inconclusive, which was consistent with the literature. In the context of the best time to start a program, the parent group shared seven items, whilst the birth professional panel generated nine possibilities. Of the 16 collective items, both groups identified seven items that were the same: "preconception", "as soon as the couple discover they are pregnant", "trimester one", "trimester two", "trimester three", "after the first ultrasound", and "no set time—when parents are ready".

None of the items listed above were agreed upon by both expert panels. Independently, the parent panellists reached consensus on “trimester two” and “no set time—when parents are ready”. The birth professional panellists reached consensus on “as soon as the couple discover they are pregnant” and “trimester one”.

Lack of consensus was similar across both expert groups for the items “preconception” and “after the first ultrasound”, and neither item was progressed to the recommendations list. The items “late teens/early adulthood prior to any pregnancy” and “after quickening” were unique to the birth professional expert group.

When effective time for PPN parenting programs to end was examined between the two expert groups, results were unanimously polarised to non-consensus outcomes. Specifically, of the four literature-derived items that were presented to both groups, none attained consensus across either group. The items were “before birth”, “within three months post birth”, “within three to six months post birth”, and “within six to 12 months post birth”. Further, one unique item per expert group was identified, and neither was met with consensus within the groups and were not included as recommendations for future PPN parenting programs. Specifically, the parent group shared “ongoing on an as needs basis”, and the birth professional group identified “three-years post birth”.

Flexibility appeared to be needed when creating both start and end times for future PPN parenting programs. A practical way to achieve this may be to modularise sessions that expecting parents can engage with at appropriate times based on readiness, interest, needs, and life schedules.

**d. How can information in PPN parenting programs most effectively be presented/delivered?** Nine items for this question were generated from the literature and consensus was achieved across both expert panel groups on six items: (a) “use of video”; (b) “experiential” (e.g., practicing skills, modelling of skills, roleplaying, parents sharing

experiences, discussions); (c) "home practice activities included to consolidate learning"; (d) "individualised program where couples can select modules that apply to their unique circumstances"; (e) "a combination of standardised core modules, along with the ability to select other modules that apply to attendees' unique circumstances"; and (f) "multimedia environment" (e.g., mix of lecture, video, group discussion, activities, self-reading, take home tasks).

Both groups reached *disagreement* consensus for the items "lecture style" and the "use of manuals/workbooks". That is, neither group advocated for these to be used as delivery styles in future PPN parenting programs. The birth professional cohort did not support standardised 'one-size-fits-all' programs being created. Whilst the *a priori* cut off of 75% consensus was not reached for the parent group on this item, the consensus percentage of 73.9% in the direction of *disagreement* suggested a consistent trend in perception across both groups.

The parent group generated one additional item that attained consensus and was subsequently included in the recommendations list. The item was "facilitator to ask for feedback and incorporate changes based on it".

**e. What is the most effective location/platform for delivery of PPN parenting programs?** Lack of consensus was achieved for six of the 11 items presented from the literature across both expert panels. Neither panel advocated for the inclusion of the following six options for location/platform for delivery of a PPN parenting program: (a) "in-person couple sessions in a hospital setting"; (b) "self-guided learning from home" (e.g., with downloadable videos, worksheets, manual); (c) "live webinar sessions that are interactive", where a parent is able to ask questions either verbally or by typing them, and contribute 'live' during the sessions; (d) "live webinar sessions that are not interactive", where a parent can

listen 'live' to sessions, but cannot actively contribute; (e) "sessions delivered in the workplace"; and (f) "sessions delivered via phone, Skype, Zoom or other similar platforms".

Whilst the abovementioned items were not included in the recommendations list, it may be premature to conclude that the items are not effective location/platforms for delivery of programs in the future. There are two reasons for this. Firstly, there is a growing presence of technology-driven platforms for the delivery of adult education (Cunningham et al., 2017; Gazmararian et al., 2014; Godin et al., 2015; Halford, 2004; Hauck et al., 2016; NWCPHP, 2012; Petch et al., 2012; Quirk et al., 2014; Trillingsgaard et al., 2012). It is suggested that further research be conducted to determine specifically why perceptions of both parent and birth professional groups did not concur with the literature supporting the trend for technology-based education. Secondly, the literature advocates for creative ways for programs to be delivered to maximise the inclusion and attendance of expecting fathers (Redshaw & Henderson, 2013; Zvara et al., 2013); offering programs in workplaces is one possible solution (Robbers, 2009; Sahip & Turan, 2007).

Results were polarised between the two expert groups on four of the five remaining literature-based items relating to most effective location/platform for delivery of PPN parenting programs. Specifically, consensus was not achieved by the parent panellists, yet was by the birth professional group on the following items: "in-person group sessions in a training room environment", "in-person couple sessions in a training room environment", "sessions delivered via home visits", and "sessions delivered in community centres". Of note, while *a priori* consensus of 75% was not reached by the parent group, it was very close at 73.9%.

The one remaining item from the research, "in-person group sessions held in a hospital setting" was also polarised, where the parent panellist group reached consensus and the birth professional group did not.

The parent group shared four exclusive items: “small group sessions in home environment”, “father-only group sessions held monthly during pregnancy and post birth”, “any location that has easy access parking and refreshments provided” (Nolan, 2017), and “sessions for fathers held in a birthing room, with all of the equipment there so it becomes ‘real’”. The birth professional group offered one item that was unique to them “in a parent-to-parent mentoring environment”. Overall, consensus on these items was not achieved within the groups.

**f. Who ought to deliver PPN parenting programs?** Stability in consensus results across both expert panel groups was evident for two research-derived items relating to who ought to deliver PPN parenting programs. They were “midwives” and “childbirth educators”. However, neither expert group reached consensus agreement for the items “OB/GYN”; “psychologist, social worker, therapist, counsellor, coach”; and “elders from the community”.

Polarised views between the groups were evident for the remaining four pre-determined items drawn from research. The expert parents did not reach consensus when “doulas” and “parents” were rated, whilst the birth professional group reached agreement for both. The parent expert panel reached consensus for “nurses” and *disagreement* consensus for having “academic researchers” as potential facilitators. For the birth professional group, no agreement was reached on either item.

There were unique findings exclusive to each of the expert groups, and where the items reached within-group agreement, they were included in the recommendations list. The relevant consensus-based items derived from the parent expert group were “collaboration between a range of qualified pregnancy and birth specialists”; “anyone who understands the father-role in pregnancy and who can deliver material in a non-condescending way”; “anyone who is qualified and is caring, competent, non-judgmental, and confident”; and “anyone who is qualified and engaging, approachable, and knowledgeable”.

There were two items that achieved consensus within the birth professional panel only. The first attained *agreement* consensus and was "collaboration between psychologist, midwife, and childbirth educator". The second attained *disagreement* consensus and was "anyone who can be personal in their approach".

**g. What is the most effective length of each session and time between each session in PPN parenting programs?** As previously stated in the discussion sections of both Studies 3 and 4, no clarity was reached within-groups for length of individual sessions within PPN parenting programs. This trend of inconclusive findings continued when between-groups results were investigated. Whilst both panels identified a wide range of items (e.g., "one hour", "two hours", "half day", "full day", "no set time"), consensus agreement was not reached on any item, and as a result, no specific recommendations for future PPN parenting program development were generated.

When most effective amount of time between program sessions was examined, no items attained consensus between the two panels. As reported in Chapters 7 and 8, the parent panellists reached *disagreement* consensus for the time-frames of "three months" and "five weeks". The birth professional group alone attained *agreement* consensus for the time-frames of "between one-to-five days" and "one week".

The lack of standardisation across both time-related topics, as well as between both expert panel groups was consistent with the existing research (as reported in Chapters 7 and 8). This indicated that session length, and time between sessions, may not be an important factor that expecting parents take into account when engaging in PPN parenting programs.

**h. What is the most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)?** A multitude of items were presented by both expert panel groups. There were some consistencies in time-frames presented across both groups (e.g., "six weeks", "from trimester one until birth"). There were also items shared that were

distinctive to each panel. Specifically, the parent panel identified consolidating programs into "one full day"; whilst the birth professionals suggested having programs run from "trimester three until three months post birth". However, as consensus agreement was not attained on any item by either group, no recommendations were included.

**Suggestions for Practical Execution of Design, Development, and Delivery of Future PPN Parenting Programs**

Due to the volume and diversity of items identified from across the expert Delphi methodology panellists, there were numerous factors to consider for effective and practical implementation of the recommendations to be possible. Suggestions are detailed below, and are presented under six categories: content, maintaining participant engagement throughout a program, maximising father involvement and inclusion in programs, target groups for PPN parenting programs, effective locations/platforms for delivery and most effective ways to deliver/present information in PPN parenting programs, and who ought to deliver a PPN parenting program. For consistency, these categories are included in the summary of key recommendations collated from across both expert panellist groups, as presented in Appendix W.

**Content.** In total, 94 content-based items attained consensus across both expert panels and were forwarded as recommendations for inclusion in future PPN parenting programs. That said, it would not be practical to present expecting parents with this amount of information for a range of possible (and non-exhaustive) reasons, including: ability to retain the learnings, mental fatigue, generalisability across all expecting parents who attend programs, needs and interest levels of attending parents, diversity of knowledge and expertise of facilitators, cost to design and deliver this volume of information, and time available to attend program sessions throughout a pregnancy. In response to this, strategies for how to present information in practical and effective 'chunks' include:

1. Identifying the different stages of pregnancy where program content can be offered to parents, and then categorising the content from the recommendations list under each of the relevant stages. If this is achieved, then content could be presented in a logical way during times most relevant throughout pregnancies (Godin et al., 2015). As no clarity was attained regarding most effective timing for PPN parenting programs to start and end, by either expert panel or the literature, the decision was made to use simple and logical stages that relate to phases of pregnancy.

Example stages of pregnancy with associated relevant content are:

- *Preconception*: "understanding the scope of conscious awareness of a prenate during pregnancy", and "building secure attachment as a couple";
- *Trimester one*: "intentional communication with baby during pregnancy", and "how a father can bond with baby during pregnancy and post birth";
- *Trimester two*: "education on physiological and psychological development in the prenatal period", and "learning about nervous system regulation and how thoughts and actions influence the growing baby's nervous system";
- *Trimester three*: "relaxation techniques for labour and birth", and "how to ask for the birth you want in a hospital setting (how to say 'no')"; and
- *Post birth (fourth trimester)*: "how to maximise bonding and attachment", and "being a 'good enough' parent post birth".

2. Creating criteria for when consensus attained items ought to be included as content in *core modules* that all attending parents receive. Examples of such criteria include:
    - items that reached consensus by both panellist groups, and were supported by the literature. Examples included: "maternal diet", "mother-prenate and father-prenate relationship in the womb", "maternal and paternal stress", "anxiety and/or depression", and "a mother's and father's perception (thoughts, attitudes, feelings,

beliefs—both positive or negative) of each other, events, and environment experienced during a pregnancy";

- items that attained consensus by both groups that were not originally derived from the literature. Examples included "perception of what it means to be a 'good enough' parent" and "stress management"; and
- items where consensus was not achieved across both expert groups, and that did attain consensus by 100% of panellists from one expert group only, could be included as *core* content. For example, content that focusses on "health and wellbeing of baby" (derived from the parent group), and "social support option for mothers during pregnancy and beyond" (derived from the birth professional group).

3. All content-based items that attained consensus by at least one of the expert panels (but not meeting the example criteria above for *core modules*), could be formulated into *optional modules.* Parents could then choose modules that are relevant to their needs. *Optional modules* could be formulated for each stage of the pregnancy (as discussed above for *core modules*). Example content, by stage of pregnancy, includes:
   - *Preconception*: "how to process trauma and emotion from any past pregnancy/birth losses";
   - *Trimester one*: "latest research trends", and "overcoming fears relating to pregnancy, birth, and parenting";
   - *Trimester two*: "understanding role identity change during the transition from couple to parenthood", and "positive strategies to manage emotional triggers and reactions during pregnancy and post birth";

- *Trimester three*: “understanding communication cues, reactions, and cries of baby post birth”, and “understanding maternal and paternal post birth mood disorders”; and
- *Post birth (fourth trimester)*: “tips for shared parenting”, and “how to live the life you want post birth”.

**Maintaining participant engagement throughout a program.** Two key ideas could be implemented to ensure participant engagement is maximised: (a) a checklist that PPN parenting program developers and facilitators use to rate whether each proposed module meets the criteria identified by the expert parent panellists for engagement. For example, content being simple and practical, sessions designed to be experiential and fun, breaks being factored in (Millar, 2003, NWCPHP, 2012); and (b) participant feedback forms that are offered at the end of each module so programs can be modified and improved on an ongoing basis (Comings et al., 2003; NWCPHP, 2012).

**Maximising father involvement and inclusion in programs.** Numerous barriers to fathers attending PPN parenting programs and ensuring the barriers are mitigated in meaningful ways were identified by both expert panellist groups, as well as the literature. Strategies for how to achieve this included:

1. Once the *core* and *optional content modules* have been created, existing fathers, expecting fathers, and men who plan to become fathers, could be invited to attend focus groups and provide feedback on: relevance of material to them; what else is needed to make every component of PPN parenting programs targeted to their needs (e.g., content, time and location for delivery, facilitator type, inclusion of fathers as facilitators to enhance relatability); and what is currently included in programs that is ineffective or inappropriate.

2. Pilot testing a range of times that may be most convenient for fathers to attend programs (e.g., after work hours, Saturday mornings). To achieve this the following strategies could be explored:
    - seeking funding from government departments, research institutions, corporations, and private organisations that advocate and support PPN psychology, in an effort to finance the costs associated with clinical trials of any PPN parenting programs designed. This suggestion is supported in the literature that advocates for (a) father inclusion during pregnancy and beyond (Barth, 2009; Darwin et al., 2017; Davis et al., 2016; Humphries & Nolan, 2015), and (b) enhanced understanding how fathers may impact prenatal health and pregnancy outcomes post birth of mothers and babies (Adamsons, 2013; Alio et al., 2010; Jackson, 2017).
    - conducting clinical trials that generate empirical evidence for the effectiveness of fathers' involvement in PPN parenting programs on the thriving of couples and babies. For this to be successful, measurable outcomes need to be carefully considered. Examples include: consequences for parents and babies, adequate statistical significance, sample sizes of control and intervention groups (first ensuring the inclusion of comparison groups), pre- and post-program measurement of anticipated predetermined intervention outcomes, and long-term follow up to check level of effect and program evaluations from participants (Collins & Fetsch, 2012; Nolan, 2017; Pinquart & Teubert, 2010).

Generating empirical evidence may influence future paternal parenting policies in favour of paternity leave, as well as fathers being able to navigate poor workplace support for time to engage in PPN parenting programs. This strategy is supported by the adult education literature that suggested funding is a necessity to create evidence-based programs that integrate research, practice, and formulate policy (Comings et al., 2003). Further, when PPN

parenting programs for both mothers and fathers are considered, research has advocated that it should be a priority for public health investment worldwide, and although it has not consistently been to-date (Neuhauser et al., 2007), momentum is building in some first-world regions (Department of Health Maternity Services, 2017; Rodrigo et al., 2016).

**Target groups for PPN parenting programs.** Given that 16 target groups were identified and agreed upon across both expert panels, additional research needs to be conducted to determine what content areas are relevant to all cohorts, as well as to identify which optional modules would be most valuable to each group. A series of focus groups, one per target cohort group, could be conducted. Results from the Delphi methodology studies completed in the current research project could be shared, and clarity could sought on topics that be most appropriate as *core* and *optional*, based on the need of each cohort. PPN parenting programs could then be created with the most accurate modules included. Examples of target groups include: "first-time parents", "teens", "same-sex couples", "adoptees", "mothers-only", and "fathers-only".

**Effective locations/platforms for delivery and most effective ways to deliver/present information in PPN parenting programs.** "In-person group settings" was the most consistent item, across panels, from the consensus feedback regarding location/platform for delivery. As a result, once new PPN parenting programs are developed, each program could be delivered in multiple trial locations that were preferred by panellists (e.g., "hospital setting", "community-based training rooms").

Additionally, both of the expert panels reached agreement on preferred ways for program information to be presented/delivered to participants. Examples included: using "multimedia environment" (e.g., "videos", "group discussion", and "online resources"); "incorporating home-practice activities"; and having a combination of standardised *core* and

*optional* modules. Hypothesised strategies to logistically address the above considerations, as well as meet the desire for "in-person group settings", are:

- experiment with delivering the same *core* modules to groups in different locations such as "in-person group environment in a hospital setting", as well as a "training room environment". Additionally, as no consensus was reached by either panellist group, or the literature, for length of time between each session, delivering the same *core* modules to multiple groups, each with a different time interval between sessions could be explored (e.g., one week, two weeks, and one month). Program effectiveness would need to be measured before making valid recommendations for best-practice regarding location of program delivery and time between each session. Possible measures of effectiveness include retention and implementation of information learned; bonding and attachment between couples, and between parents and babies pre and postnatally; and maternal and paternal stress, anxiety, and depression pre- and postnatally.
- Ensure that all *optional* modules are video-based, where participants can download and watch at a time that is convenient to them.

**Who ought to deliver PPN parenting programs.** Possible strategies to incorporate the range of facilitator types recommended by the panellists are: (a) recruit a multidisciplinary team to facilitate differing *core* and *optional* modules based on facilitator skill-set and level of expertise; (b) have a mix of male and female facilitators that individually present some content (e.g., female facilitators for discussing topics such as breastfeeding; and male facilitators for educating how fathers can bond with their babies during pregnancy and post birth); (c) utilise co-facilitation where it may be effective (e.g., sessions discussing how couples can connect, communicate, and work as a team) (Feinberg et al., 2015; Nolan, 2017); (d) employ topic experts and participant cohort experts to facilitate

sessions for modules that may be video or web-based; and (e) only recruit facilitators who are personable, engaging, passionate, fun (Bryson, 2013; NWCPHP, 2012), and skilled at creating a vibrant and inclusive environment that respects individuals' choices and enables participation by all attendees (Gibson, 2016; Landy et al., 2012).

**General Suggestions for Practical Execution of PPN Parenting Programs**

In addition to the above six categories of suggestions, the following general strategies may be of value:

1. Once modules have been designed, facilitate focus groups with samples from each of the identified target cohort groups. Peer based support options to include in PPN parenting programs to reduce stress, anxiety, and/or depression could be explored at this time, as a further measure to individualise programs. Research supports an array peer support delivery options including group peer support led by women who have experienced pre-and postnatal anxiety and/or depression (Carter, Cust, & Boath, 2018; Cust, 2016), telephone-based peer support (Letourneau et al., 2015), and individualised peer support (Jones, Jomeen, & Hayter, 2014). Recommended changes can then be implemented based on feedback.
2. Facilitators to keep abreast of new trends, philosophies, theories, and clinical studies, and incorporate them in the *core* modules presented at the "in-person group sessions".
3. For modules that are pre-recorded and video or web-based, updated philosophies, trends, and research could be shared in an online resources section available to all attendees (e.g., via a login section on website).
4. All potential multi-disciplinary facilitators (e.g., "midwife", " nurse", "parent", "childbirth educator") could be required to attend standardised, competency-based, facilitator training and then co-facilitate program sessions until deemed to be competent. The criteria for competency would be used as a starting point for future

benchmarking of consistency in program delivery (e.g., Arcus, 1995; DeBord, 2016; Korfmacher et al., 1999; Nolan, 2017; Polomeno, 2009).

Regardless of target cohort groups, content, delivery style, and facilitators' characteristics, future PPN parenting programs need to be based on current-time best practice that has been empirically measured (e.g., Ayiasi et al., 2013).

**Next Chapter**

The following chapter provides a brief concluding overview of the major findings and limitations from across the four studies of the current dissertation, as well as from the literature presented. Hypothesised implications as a result of the current research are outlined, along with suggestions for future research.

## Chapter 10: General Discussion

Whilst becoming a parent is often a happy and joyful event filled with positive expectations (Rosand et al., 2011), research showed expecting parents commonly report not having the skills, information (Gazmararian et al., 2014), nor self-efficacy (Chung-Park, 2012; Davis et al., 2016) to confidently embark on the transition to parenthood. A key benefit of parents engaging in PPN parenting programs is the optimisation of the physical, mental, and emotional health of mothers, fathers, and babies (Glied & Oellerich, 2014). Relational capability can also be enhanced through bonding and attachment between mother and father as a couple, and between both parents and their baby (Michaud, 2012; Neuhauser et al., 2007; Young, 2013). Existing literature suggests positive outcomes for parents who attend PPN parenting programs may include: improved prenatal care, positive parenting post birth, decreased maternal stress and paternal anxiety, and enhanced emotional and social support (Abu-Saad & Fraser, 2010; Atasever & Altun, 2017; Charandabi et al., 2017; Cox & Phelan, 2008).

Despite the benefits of participation in PPN parenting programs, attendance and engagement has not been reached at the population level when pregnant women and expecting fathers are targeted (Deslauriers et al., 2012; Karoley et al., 1998; Neuhauser et al., 2007; Piotrowska et al., 2017). Furthermore, there are no standardised guidelines for the provision of PPN parenting programs (Jongen et al., 2014). This extends to lack of consensus in terms of content, timing of program start, length and number of sessions, target cohorts, who is most qualified to deliver programs, and modes of delivery for optimal engagement.

A brief summary of findings from across the four studies of the current project are presented in this chapter. Limitations of the studies undertaken, implications, and suggestions for future research are also discussed.

**Summary of Findings**

As stated in Chapter 1, the current research project was designed to extend the literature in the PPN psychology field in five specific ways. Four of the five goals were achieved as intended, and one partially so. More specifically:

1. The first goal of expanding rigour in research under the PPN psychology banner was achieved by using empirically validated methodological designs. Explicitly, Braun and Clarke's (2006) thematic analysis process, and Delphi methodology for data collection, analysis, and informing subsequent recommendations, were utilised.
2. The second goal of targeting fathers was attained by involving them in Studies 1, 2, and 3 and understanding their needs and perceptions of what effective PPN parenting programs could include.
3. The third goal of reaching greater clarity on factors that lead to effective PPN parenting programs for the 21st century was partially met. Whilst both parents' and birth professionals' perceptions were explored across the four studies, polarised and conflicting outcomes remained for numerous categories. This was consistent with the literature.
4. The fourth goal for extending current literature in PPN findings was met through the identification of 209 participant-generated recommendations for future PPN parenting programs, from across the four studies.
5. The fifth goal of gathering information to enable the design, development, and delivery of future PPN parenting programs that can be clinically tested using sound methodological practice, was achieved.

The recommendations generated from across the four studies covered nine areas identified in the literature reviews on adult education in general and in the context of PPN parenting programs, as important for consideration (e.g., content, maximising father

involvement and inclusion in programs, target groups, effective location and delivery methods, and who ought to facilitate/deliver programs). Further research is necessary to incorporate the recommendations into a range of cohort-specific PPN parenting programs. Once achieved, each program can be clinically tested using appropriately sized random samples and incorporating control and treatment groups, as these methodological considerations have been inconsistent in some research previously explored.

The first two studies presented in Chapters 5 and 6, examined perceived quality and effectiveness of existing PPN parenting programs. Life aspects that contributed to stress throughout pregnancies and types of coping and support strategies for expecting parents, were explored (e.g., quality of couple relationship, mindfulness) (McKee et al., 2017, 2018). The intent was to generate recommendations for questions and items to include in the two Delphi methodology studies (Studies 3 and 4). Consensus was sought on relevant and effective factors that need to be considered for future PPN parenting programs. This was achieved with 19 items being included that related specifically to one question in Studies 3 and 4: "What factors may impact both the development of prenates during gestation and influence who babies become post birth, that expecting parents would benefit from learning about?" A wide range of possible PPN parenting program content areas was also rated by both parent and birth professional expert panellists. For example, knowledge and skills on: "how to soothe baby", "sleep training", "attachment parenting", "couple connection", "communication", "working together", "adaptive coping", "factors that mitigate father involvement", and "understanding fathers' needs".

Both studies 3 and 4 were undertaken as the research regarding factors such as the most effective content to be presented, who ought to attend, program timing and length, how to genuinely overcome barriers to father attendance, delivery methods of information, location for program delivery, and who is most effective to facilitate PPN parenting

programs, was inconclusive. Agreement between both expert panel groups and existing literature was reached on 94 items relating to most effective content to be included. The items were presented as recommendations for either *core* or *optional* content in future modular-based programs. Consistent themes that emerged across both Delphi panels and the literature were the need to ensure all content, regardless of topic, is presented in way that is judgement free, empowering to mothers and fathers, and that promotes choice in decision-making and actions related to pregnancy, birth, and parenting.

A wide range of responses were identified that contributed to understanding the perspectives and needs of expecting fathers. Further, when barriers to fathers attending PPN parenting programs was explored, differences existed for both the range of responses identified, and the levels of consensus agreement attained between both panellist groups. Given that research indicated a father's involvement throughout a pregnancy and beyond may positively impact on optimal growth of the prenate (Alio et al., 2010; Brown et al., 2012; Jackson, 2017; Korja et al., 2017), it is recommended that further research be undertaken. This would extend the literature base that focusses on understanding fathers' needs and overcoming existing barriers to [father] attendance.

In line with the intended aim of the current research project, clarity was attained on numerous factors relating to effective PPN parenting programs across both expert panel groups. This was specifically evidenced for: (a) many aspects of content (as stated above), (b) groups who may benefit from having access to PPN parenting programs, (c) mothers and fathers being provided sessions both separately and as a couple, (d) ways information can effectively be presented, and (e) who is viewed as the most effective facilitators of PPN parenting programs.

The current research project did not add further clarity on factors relating to timing and length of programs, and there was limited consensus attained regarding best

platform/location for delivery. This suggests that flexibility in design may be required to suit individual needs of mothers, fathers, and couples who choose to attend PPN parenting programs.

**Limitations of the Current Research Studies**

Across the four studies of the dissertation project, a number of limitations were evident, and all have been previously detailed. In summary, the three key limitations from Studies 1 and 2 included: (a) the use of online questionnaires may have limited the depth of data attained; (b) the low number of cases in some of the variables quantitatively measured, which led to an inability to interpret results based on causation; and (c) minimal responses by fathers (despite recruitment efforts), which limited confidence that the thematic analysis results were reflective of the general father population.

Studies 3 and 4 yielded a further four key limitations that were: (a) whilst consensus was found for 209 items, this is no way meant that the most accurate responses were found (Dawson et al., 2015; Hasson et al., 2000). This restricted interpretation of recommendations to the expert panellists involved in the current studies; (b) representativeness of the samples from both the parent and birth professional expert panels was not assured, as the panellists were not randomly selected; (c) consensus results across both expert panels were based on the literature derived *a priori* level of consensus being 75%. Results would have been different if either a higher or lower consensus percentage had been selected (that was within the bounds of what the literature supports). This suggests that the results from the Delphi methodology studies may have been malleable depending on consensus criteria selected by the researcher; and (d) three birth professional panellists suggested that some questions may have been too broad to enable identification of best-practice options for future PPN parenting programs.

**Limitations from the PPN Parenting Program Literature**

A range of limitations were identified that were consistent across the literature. Addressing them in a methodologically sound way has implications for future research recommendations. In review, the limitations included: (a) selection bias; (b) the use of self-report measures as a main form of data collection; (c) the use of small samples sizes; (d) the use of self-report instruments that have not been widely used in PPN psychology research, which may have had implications for validity and predictive accuracy of results reported; and (e) a lack of consensus on what factors are essential for PPN parenting programs to be considered effective by literature, parents, and birth professionals alike.

**Directions for Future Research**

In relation to the four studies conducted in the present research, findings were limited to what the participants perceived to be important factors for inclusion and exclusion in future PPN parenting programs. Whilst every effort was made to match findings with existing literature, it is recommended that when designing new programs, researchers as well as facilitators of the programs, continue to seek feedback for best-practice and incorporate empirical findings into programs. It is recommended that the information shared with consumer groups who attend PPN parenting programs be constantly updated.

Future research could also involve conducting further Delphi methodology studies that replicate what was achieved in Studies 3 and 4, by targeting panellists from different parent cohort groups (e.g., teens, same-sex couples, first-time parents). This would ensure content is targeted to meet the specific needs of the different cohorts.

Lastly, to mitigate the abovementioned limitations, it is recommended that future studies test the effectiveness of PPN parenting programs by using randomised clinical trials that include waitlists, control groups, and contrast treatments, for comparison. By also

incorporating a longitudinal design, sustainability of program outcomes for mothers, fathers, and babies may be determined.

## References

Abiodun, O. A., Adetoro, O. O., & Ogunbode, O. O. (1993). Psychiatric morbidity in a pregnant population in Nigeria. *General Hospital Psychiatry, 15*(2), 125-128. doi: 10.1016/0163-8343(93)90109-2

Abu-Saad, K., & Fraser, D. (2010). Maternal nutrition and birth outcomes. *Epidemiologic Reviews, 32,* 5-26. doi: 10.1093/epirev/mxq001

Adams, G., & Schvaneveldt, J. (1991). *Understanding the research methods* (4th ed.). New York: Longman.

Adamsons, K. (2013). Possible selves and the prenatal father involvement. *Fathering, 11*(3), 245-255. doi: 10.3149/fth.1103.245

Adler, M., & Ziglio, E. (Eds.). (1996). *Gazing into the oracle: The Delphi method and its application to social policy and public health*. London: Jessica Kingsley.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Akinbami, L. J., Cheng, T. L., & Kornfeld, D. (2001). A review of teen-tot programs: Comprehensive clinical care for young parents and their children. *Adolescence, 36*(142), 381-393. doi: 10.1002/14651858

Aktar, E., & Bögels, S. M. (2017). Exposure to parents' negative emotions as a developmental pathway to the family aggregation of depression and anxiety in the first year of life. *Clinical Child and Family psychology Review, 20*(4), 369-390. doi: 10.1007/s10567-017-0240-7

Alalshaikh, S. (2015). Cultural impacts on distance learning, online learning styles, and design. *The Quarterly Review of Distance Education, 16*(3), 67-75. Retrieved from https://eric.ed.gov/?id=EJ1143825

Albuja, A. F., Lara, M. A., Navarrete, L., & Nieto, L. (2017). Social support and postpartum depression revisited: The traditional female role as moderator among Mexican women. *Sex Roles, 77*(3-4), 209-220. doi: 10.1007/s1199-016-0705-z

Alexander, J., & Kroposki, M. (1999). Outcomes for community health nursing practice. *Journal of Nursing Administration, 29*(5), 49-56. doi: 10.1097/00005110-199905000-00007

Alio, A., Salihu, H., Kornosky, J., Richman, A., & Marty, P. (2010). Feto-infant health and survival: Does paternal involvement matter? *Maternal and Child Health Journal, 14*(6), 931-937. doi:10.1007/s10995-009-0531-9

Alio, A. P., Bond, M. J., Padilla, Y. C., Heidelbaugh, J. J., Lu, M., & Parker, W. J. (2011). Addressing policy barriers to paternal involvement during pregnancy. *Maternal and Child Health Journal, 15*(4), 425-430. doi: 10.1007/s10995-011-0781-1

Alio, A. P., Lewis, C. A., Scarborough, K., Harris, K., & Fiscella, K. (2013). A community perspective on the role of fathers during pregnancy: A qualitative study. *BMC Pregnancy and Childbirth, 13*, 60-71. doi: 10.1186/1471-2393-13-60

Alio, A. P., Mbah, A. K., Grunsten, R. A., & Salihu, H. M. (2011). Teenage pregnancy and the influence of paternal involvement on fetal outcomes. *Journal of Paediatric and Adolescent Gynaecology, 24*(6), 404-409. doi: 10.1016/j.jpag.2011.07.002

Allen, P., Bennett, K., & Heritage, B. (2014). *SPSS statistics version 22: A practical guide*. South Melbourne, Australia: Cengage Learning.

Anacker, C., O'Donnell, K. J., & Meaney, M. J. (2014). Early life adversity and the epigenetic programming of hypothalamic-pituitary-adrenal function. *Dialogues in Clinical Neuroscience, 16*(3), 321-333. doi: 10.1016/j.biopsych.2014.11.022

Appleton, A. A., Armstrong, D. A., Lesseur, C., Lee, J., Padbury, J. F., Lester, B. M., & Marsit, C. J. (2013). Patterning in placental 11-B hydroxysteroid dehydrogenase

methylation according to prenatal socioeconomic adversity. *PLoS One, 8*(9), e74691-e74698. doi: 10.1371/journal.pone.0074691

Arcus, M. E. (1995). Advances in family life education: Past, present, and future. *Family Relations, 44*(4), 336-344. doi:10.2307/584988

Aronson, J. (1994). Pragmatic view of thematic analysis. *The Qualitative Report, 2*(1), 1-5. doi: 10.12691/ajap-2-1-2

Artieta-Pinedo, I., Paz-Pascual, C., Grandes, G., & Espinosa, M. (2017). Framework for the establishment of a feasible, tailored and effective perinatal education programme. *BMC Pregnancy and Childbirth, 17*(1), 58. doi: 10.1186/s12884-017-1234-7

Atasever, I., & Altun, O. S. (2017). Comparison of perceived social support and mental state of women according to their pregnancy wantedness. *International Journal of Caring Sciences, 10*(2), 781-793. Retrieved from http://www.internationaljournalofcaringsciences.org/docs/16-1_sahin_original_10_2.pdf

Atkinson, L., Niccols, A., Paglia, A., Coolbear, J., Parker, K. C. H., Poulton, L., … Sitarenios, G. (2000). A meta-analysis of time between maternal sensitivity and attachment assessments: Implications for internal working models in infancy/motherhood. *Journal of Social and Personal Relationships, 17*(6), 791-810. doi: 10.1177/0265407500176005

Atzil, S., Hendler, T., & Feldman, R. (2013). The brain basis of social synchrony. *Social Cognitive and Affective Neuroscience, 9*(8), 1-10. doi: 10.1093/scan/nst105

Australian Institute of Health and Welfare (AIHW). (2014). *Australia's mothers and babies 2014*. Canberra, Australia: Author. Retrieved from http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129557657

Avis, J. (1986). *Training and supervision in feminist-informed family therapy: A Delphi study* (Unpublished doctoral thesis), Purdue University, Indiana, USA.

Axness, M., & Strauss, T. (2007). Inviting fathers in: The tender beginnings of attachment in men. *Wet Set Gazette, 4*, 13. Retrieved from http://www.fatherstobe.org/Inviting%20Fathers%20In%20Axness.pdf

Ayiasi, M. R., Van Royen, K., Verstraeten, R., Atuyambe, L., Criel, B., Garimoi, C. O., & Kolsteren, P. (2013). Exploring the focus of prenatal information offered to pregnant mothers regarding newborn care in rural Uganda. *BMC Pregnancy and Childbirth, 13*, 176-187. doi: 10.1186/1471-2393-13-176

Bäckström, C., & Hertfelt Wahn, E. (2011). Support during labour: First-time fathers' descriptions of requested and received support during the birth of their child. *Midwifery, 27*(1), 67-73. doi:10.1016/j.midw.2009.07.001

Bäckström, C., Thortensson, S., Martensson, L. B., Grimmings, R., Nyblin, Y., & Golsater, M. (2017). 'To be able to support her, I must feel calm and safe': Pregnant women's partners' perceptions of professional support during pregnancy. *BMC Pregnancy and Childbirth, 17*(1), 234. doi: 10.1186/s12884-017-1411-8

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10*(2), 125-143. doi: 10.1093/clipsy/bpg015

Bakersman-Kranenburg, M. J., & van IJzendoorn, M. H. (2006). Gene-environment interaction of the dopamine D4 receptor (DRD4) and observed maternal insensitivity predicting externalising behaviour in pre-schoolers. *Developmental Psychobiology, 48*(5), 406-409. doi: 10.1002/dev.20152

Bakersman-Kranenburg, M. J., van IJzendoorn, M. H., & Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin, 129*(2), 195-215. doi: 10.1037/0033-2909.129.2.195

Ballard, C., & Davies, R. (1996). Postnatal depression in fathers. *International Review of Psychiatry, 8*(1), 65-71. doi:10.3109/09540269609037818

Ballou, J. W. (1978). *The psychology of pregnancy*. Lexington, MA: Lexington Books.

Baltimore, D. (2001). Our genome unveiled. *Nature, 409*(6822), 814-816. doi: 10.1038/35057267

Bandura, A. (1977). *Social learning theory*. New Jersey, USA: Prentice Hall.

Banyard, V. L., & Graham-Bermann, S. A. (1993). A gender analysis of theories of coping and stress. *Psychology of Women Quarterly, 17*(3), 303-318. doi: 10.1111/j.1471-6402.1993.tb00489.x

Bardacke, N. (2012). *Mindful birthing: Training the mind, body, and heart for childbirth and beyond*. New York, NY: Harper One.

Barker, D. J., & Clark, P. M. (1997). Fetal undernutrition and disease in later life. *Reviews of Reproduction, 2*(2), 105-112. doi: 10.1530/ror.0.0020105

Barrack, A. C. (2007). A journey of love: The influence of prenatal and perinatal psychology on parent-child bonding. *Journal of Prenatal and Perinatal Psychology and Health, 22*(1), 55-78. Retrieved from https://birthpsychology.com/journals/volume-22-issue-1/journey-love-influence-prenatal-and-perinatal-psychology-parent-child-bon

Barrett, G., Shawe, J., Howden, B., Patel, D., Ojukwu, O., Pandya, P., & Stephenson, J. (2015). Why do women invest in pre-pregnancy health and care? A qualitative investigation with women attending maternity services. *BMC Pregnancy and Childbirth, 15*, 236-251. doi: 10.1186/s12884-015-0672-3

Barth, R. P. (2009). Preventing child abuse and neglect with parent training: Evidence and opportunities. *Future Child, 19*(2), 95-118. doi: 10.1353/foc.0.0031

Bavolek, S. J. (2016). Nurturing parenting programs for the prevention of child maltreatment. In J. J. Ponzetti, Jr. (Ed.), *Evidence-based parenting education: A global perspective* (pp. 206-224). New York, NY: Routledge.

Baytop, C. M. (2006). Evaluating the effectiveness of programs to improve educational attainment of unwed African American teen mothers: A meta-analysis. *The Journal of Negro Education, 75*(3), 458-477. Retrieved from https://www.jstor.org/stable/40026815?seq=1#page_scan_tab_contents

Beck, A.T. (2008). The evolution of the cognitive model of depression and its neurobiological correlates. *American Journal of Psychiatry, 165*(8), 969–977. doi: 10.1176/appi.ajp.2008.08050721

Beck, C. T. (1996). A meta-analysis of predictors of postpartum depression. *Nursing Research, 45*(5), 297-303. doi: 10.1097/00006199-199609000-00008

Beech, B. F. (1997). Studying the future: A Delphi study of how multi-disciplinary clinical staff view the likely development of two community mental health centres over the course of the next two years. *Journal of Advanced Nursing, 25*(2), 331-338. doi: 10.1046/j.1365-2648.1997.1997025331.x

Beech, B. L. (1999). Ultrasound: Weighing the propaganda against the facts. *Midwifery Today, 51*, 1-8. Retrieved from http://www.midwiferytoday.com/articles/ultrasound.asp

Belsky, J., Jonassaint, C., Pleuss, M., Stanton, M., Brummett, B., & Williams, R. (2009). Vulnerability genes or plasticity genes? *Molecular Psychiatry, 14*, 746-754. doi: 10.1038/mp.2009.44

Belsky, J., Youngblade, C., Rovine, M., & Volling, B. (1991). Patterns of marital change and parent-child interaction. *Journal of Marriage and the Family, 53*(2), 487-498. doi: 10.2307/352914

Benedek, T. (1959). Parenthood as a developmental phase: A contribution to the libido theory. *Journal of the American Psychoanalytic Association, 7*(3), 389-417. doi: abs/10.1177/000306515900700301

Bengston, V. L., & Allen, K.R. (1993). The life course perspective applied to families over time. In P. Boss, W. J. Doherty, R. LaRossa, W. R. Schumm, & S. R. Steinmetz (Eds.), *Sourcebook of family theories and methods: A contextual approach* (pp. 469-499). New York, NY: Plenum.

Bennett, H. A., Einarson, A., Taddio, A., Koren, G., & Einarson, T. R. (2004). Prevalence of depression during pregnancy: A systematic review. *Obstetrics & Gynaecology, 103*(4), 698-709. doi: 10.1097/01.AOG.0000116689.75396.5f

Bennington, L. K. (2010). *The relationship among maternal infant bonding, spirituality, and maternal perception of childbirth experience* (Unpublished doctoral thesis), Virginia Commonwealth University, USA.

Berg, M., Olafsdottir, O. A., & Lundgren, I. (2012). A midwifery model of women-centred childbirth care in Swedish and Icelandic settings. *Sexual and Reproductive Healthcare, 3*(2), 79-87. doi: 10.1016/j.srhc.2012.03.001

Bergstrom, M., Kieler, H., & Waldenstrom, U. (2009). Effects of natural childbirth preparation versus standard antenatal education on epidural rates, experience of childbirth and parental stress in mothers and fathers: A randomised controlled multicentre trial. *BJOG, 116*(9), 1167-1176. doi: 10.1111/j.1471-0528.2009.02144.x

Berle, J., Mykletun, A., Daltveit, A., Rasmussen, S., Holsten, F., & Dahl, A. (2005). Neonatal outcomes in offspring of women with anxiety and depression during pregnancy: A

linkage study from Nord-Trondelag Health Study (HUNT) and medical birth registry of Norway. *Archives of Women's Mental Health, 8*, 181-189. doi: 10.1007/s00737-005-0090-z

Bernard, H. R. (2000). *Social research methods*. Thousand Oaks, CA: Sage.

Biddle, B. J. (1986). Recent developments in Role Theory. *Annual Review of Sociology, 12*, 67-92. doi: 10.1146/annurev.so.12.080186.000435

Billingham, K. (2011). Preparing for parenthood: The role of antenatal education. *Community Practitioner: The Journal of the Community Practitioners' & Health Visitors' Association, 84*(5), 36-38. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21667713

Bird, A. (2007). Perceptions of epigenetics. *Nature, 447*(7143), 396-398. doi: 10.1038/nature05913

Blasco, T. M. (2003). *How to make a difference for your baby if birth was traumatic*. Santa Barbara, CA: BEBA.

Boath, E. H., Henshaw, C., & Bradley, E. (2013). Meeting the challenges of teenage mothers with postpartum depression: Overcoming stigma through support. *Journal of Reproductive and Infant Psychology, 31*(4), 352-369. doi: 10.1080/02646838.2013.800635

Bögels, S. M., Bamelis, L., & van der Bruggen, C. (2008). Parental rearing as a function of parent's own, partner's, and child's anxiety status: Fathers make the difference. *Cognition & Emotion, 22*(3), 522-538. doi:10.1080/02699930801886706

Bögels, S., & Phares, V. (2008). Fathers' role in the etiology, prevention and treatment of child anxiety: A review and new model. *Clinical Psychology Review, 28*(4), 539-558. doi:10.1016/j.cpr.2007.07.011

Bond, M. J., Galinsky, E., Kim, S. S., & Brownfield, E. (2005). 2005 National study of employers. *Families and Work Institute*. Retrieved from http://familiesandwork.org/site/research/reports/2005nse.pdf

Bond, M. J., Heidelbaugh, J. J., Robertson, A., Alio, P. A., & Parker, W. J. (2010). First priority: Research, policy and practice recommendations to improve paternal involvement in pregnancy outcomes. *Current Opinions in Obstetrics and Gynaecology, 22*(6), 525-529. Retrieved from http://journals.lww.com/co-obgyn/Pages/toc.aspx?year=2010&issue=12000

Borg, P. C. (1986). Preparation for a conscious conception, pregnancy and birth: A holistic approach. *Journal of Prenatal and Perinatal Psychology and Health, 1*(2), 149-159. Retrieved from https://birthpsychology.com/journals/volume-1-issue-2/preparation-conscious-conception-pregnancy-and-birth-holistic-approach

Borge, T. C., Aase, H., Brantsaeter, A. L., & Biele, G. (2017). The importance of maternal diet quality during pregnancy on cognitive and behavioural outcomes in children: A systematic review and meta-analysis. *BMJ Open, 7*(9), e016777. doi: 10.1136/bnjopen-2017-01677

Boulkedid, R., Abdoul, H., Loustau, M., Sibony, O., & Alberti, C, (2011). Using and reporting the Delphi method for selecting healthcare quality indicators: A systematic review. *PLoS One, 8*(1), e20476. doi: 10.1371/journal.pone.0020476

Bowlby, J. (1969). *Attachment and loss: Attachment (Vol. 1).* New York, NY: Basic Books.

Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. New York, NY: Basic Books. Retrieved from http://www.abebe.org.br/wp-content/uploads/John-Bowlby-A-Secure-Base-Parent-Child-Attachment-and-Healthy-Human-Development-1990.pdf

Boyd, S. T. (1985). Conceptual basis for nursing intervention with families. In. J. E. Hall & B. R. Weaver (Eds.), *Distributive nursing: A systems approach to community health* (2nd ed.). Philadelphia, USA: Lippincott.

Bradbury, T. N., & Karney, B. R. (2004). Understanding and altering the longitudinal course of marriage. *Journal of Marriage and Family, 66*(4), 862-879. doi: 10.1111/j.0022-2445.2004.00059.x

Braeken, M. A., Jones, A., Otte, R. A., Nyklicek, I., & Van den Bergh, B. R. (2017). Potential benefits of mindfulness during pregnancy on maternal autonomic nervous system function and infant development. *Psychophysiology, 54*(2), 279-288. doi: 10.1111/psyp.12782

Braun, V., & Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi: 10.1191/1478088706qp063oa

Brim, O. G. (1959). *Education for child rearing*. New York, NY: Russell Sage Foundation.

Brixval, C. S., Thygesen, L. C., Axelsen, S. F., Gluud, C., Winkel, P., Lindschou, J., … Koushede, V. (2016). Effect of antenatal education in small classes versus standard auditorium-based lectures on use of pain relief during labour and of obstetric interventions: Results from the randomised NEWBORN trial. *BMJ Open, 6*(6), 1-10. doi: 10.1136/bmjopen-2015-010761

Brock, G. W., Oertwein, M., & Coufal, J. D. (1993). Parent education: Theory, research, and practice. In M. E. Arcus, J. D. Schvaneveldt, & J. J. Moss (Eds.), *Handbook of family life education: The practice of family life education (Vol. 2).* (pp. 87-114). Newbury Park, CA: Sage.

Brookes-Gunn, J., Han, W., & Waldfogel, J. (2002). Maternal employment and child cognitive outcomes in the first 3 years of life: The NICD study of early childcare. *Child Development, 73*(4), 1052-1072. doi: 10.1111/1467-8624.00457

Brotherson, S. E., Dollahite, D. C., & Hawkins, A. J. (2005). Generative fathering and the dynamics of connection between fathers and their children. *Fathering, 3*(1), 1-28. doi:10.3149/fth.0301.1

Brown, G. L., Mangelsdorf, S. C., & Neff, C. (2012). Father involvement, paternal sensitivity, and father-child attachment security in the first 3 years. *Journal of Family Psychology, 26*(3), 421-430. doi: 10.1037/a0027836

Brownell, M. D., Chartier, M., Au, W., & Schiltz, J. (2011). Program for expectant and new mothers: A population-based study of participation. *BMC Public Health, 6*(11), 691-701. doi: 10.1186/1471-2458-11-691

Brugha, T.S., Sharp, H.M., Cooper, S.A., Weisender, C., Britto, D., Shinkwin, R., … Kirwan, P.H. (1998). The Leicester 500 Project: Social support and the development of postnatal depressive symptoms, a prospective cohort survey. *Psychological Medicine, 28*(1), 63-69. doi: 10.1017/S0033291797005655

Bryson, J. D. (2013). *Engaging adult learners: Philosophy, principles and practices.* Ontario, Canada: James David Bryson.

Buitelaar, J. K., Huizink, A. C., Mulder, E. J., de Medina, P. G., & Visser, G. H. (2003). Prenatal stress and cognitive development and temperament in infants. *Neurobiological Aging, 24*(1), S53-S60. doi: 10.1016/S0197-4580(03)00050-2

Burig, J. E. (2002). Special issues related to randomized trials of primary prevention. *Epidemiologic Review, 24*, 67-71. doi: org/10.1093/epirev/24.1.67

Burke, C. A. (2010). Mindfulness-based approaches with children and adolescents: A preliminary review of current research in the emergent field. *Journal of Child and Family Studies, 19*, 133-144. doi: 10.1007/s10826-009-9282x

Burpee, L. C., & Langer, E. J. (2005). Mindfulness and marital satisfaction. *Journal of Adult Development, 12*(1), 43-51. doi: 10.1007/s10804-005-1281-6

Buss, C., Davies, E. P., Muftuler, L. T., Head, K., & Sandman, C. A. (2010). High pregnancy anxiety during mid-gestation is associated with decreased grey matter density in 6-9 year-old children. *Psychoneuroendocrinology, 35*(1), 141-153. doi: 10.1016/j.psyneuen.2009.07.010

Buyukkayaci Duman, N., & Kocak, C. (2013). The effect of social support on state anxiety levels during pregnancy. *Social Behavior and Personality, 41*(7), 1153-1164. doi: 10.2224/sbp.2013.41.7.1153

Byrne, J., Hauck, Y., Bayes, S. M., & Schutze, R. (2014). Effectiveness of a Mindfulness-based Childbirth Education pilot study on maternal self-efficacy and fear of childbirth. *Journal of Midwifery Women's Health, 59*(2), 192-197. Doi: 10.1111/jmwh.12075

Cabrera, N. J., Fagan, J., & Farrie, D. (2008). Explaining the long reach of fathers' prenatal involvement on later paternal engagement. *Journal of Marriage and Family, 70*(5), 1094-1107. doi:10.1111/j.1741-3737.2008.00551.x

Cabrera, N. J., Fitzgerald, H. E., Bradley, R. H., & Roggman, L. (2007a). Modeling the dynamics of paternal influences on children over the life course. *Applied Developmental Science, 11*(4), 185-189. doi:10.1080/10888690701762027

Cabrera, N. J., Shannon, J. D., & Tamis-LeMonda, C. (2007b). Fathers' influence on their children's cognitive and emotional development: From toddlers to pre-K. *Applied Developmental Science, 11*(4), 208-213. doi: 10.1080/10888690701762100

Cameron, R. P., Wells, J. D., & Hobfoll, S. E. (1996). Stress, coping support and coping in pregnancy: Taking gender and ethnicity into account. *Journal of Health Psychology, 1*(2), 195-208. doi: 10.1177/135910539600100204

Campbell, M. K., Carbone, E., Honess-Morreale, L., Heisler-Mackinnon, J., Demissie, S., & Farrell, D. (2004). Randomised trial of a tailored nutrition education CD-ROM

program for women receiving food assistance. *Journal of Nutrition Education and Behaviour, 36*(2), 58-66. doi: 10.1016/s1499-4046(06)60134-6

Cantwell, R., & Smith, S. (2006). Prediction and prevention of perinatal mental illness. *Psychiatry, 5*(1), 15-21. doi: 10.1383/psyt.2006.5.1.15

Cao-Lei, L., Laplante, D. P., & King, S. (2016). Prenatal maternal stress and epigenetics: Review of the human research. *Current Molecular Biology Reports, 2*, 16-25. doi: 10.1007/s40610-016-0030-x

Carlson, J., Edelson, J. L., & Kimball, E. (2014). First-time fathers' experiences of and desire for formal support: A multiple lens perspective. *Fathering, 12*(3), 242-261. doi: 10.3149/fth.1203.242

Carmody, J., & Baer, R. A. (2008). Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and wellbeing in a mindfulness-based stress reduction program. *Journal of Behavioral Medicine, 31*, 23-33. doi: 10.1007/s10865-007-9130-7

Carmody, J., & Baer, R. A. (2009). How long does a mindfulness-based stress reduction program need to be? A review of class content hours and effect sizes for psychological distress. *Journal of Clinical Psychology, 65*(6), 627-638. doi: 10.1002/jclp.20555

Carmody, J., Baer, R. A., Lykins, L. B., & Olendzki, N. (2009). An empirical study of the mechanisms of mindfulness in a mindfulness-based stress reduction program. *Journal of Clinical Psychology, 65*(6), 613-626. doi: 10.1002/jclp.20579

Carson, J. W., Carson, K. M., Gil, K. M., & Baucom, D. H. (2006). Mindfulness-based relationship enhancement in couples. In R. A. Baer (Ed.), *Mindfulness-based treatment approaches: Clinician's guide to evidence base and applications* (pp. 309-331). Amsterdam: Elsevier.

Carter, R., Cust, F., & Boath, E. (2018). Peer support workers' experiences of supporting women with postnatal depression: A constant comparative exploration. *Journal of Reproductive and Infant Psychology, 36*(2), 168-176. doi: 10.1080/02646838.2017.1416336

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267-283. doi: 10.2307/351428

Caspi, A., & Moffat, T. E. (2006). Gene-environment interactions in psychiatry: Joining forces with neuroscience. *Nature Reviews Neuroscience, 7*(7), 583-590. doi: 10.1038/nrn1925

Cassel, J. C. (1976). The contribution of the social environment to host resistance. *American Journal of Epidemiology, 104*(2), 107-123. doi: org/10.1093/oxfordjournals.aje.a112281

Cassidy, J., & Shaver, P. R. (1999). *Handbook of attachment: Theory, research, and clinical applications* (3rd ed.). New York, NY: Guilford Press.

Castillo, J., Welch, G., & Sarver, C. (2011). Fathering: The relationship between fathers' residence, fathers' sociodemographic characteristics, and father involvement. *Maternal and Child Health Journal, 15*(8), 1342-1349. doi:10.1007/s10995-010-0684-6

Chamberlain, D. B. (1988). *Babies remember birth*. Los Angeles, CA: Jeremy P. Tarcher.

Chamberlain, D. B. (1995). What babies are teaching us about violence. *Journal of Prenatal and Perinatal Psychology and Health, 10*(2), 57-74. Retrieved from https://birthpsychology.com/journals/volume-10-issue-2/what-babies-are-teaching-us-about-violence

Chamberlain, D. B. (1998). *The mind of your newborn baby*. Berkeley, CA: North Atlantic.

Chamberlain, D. B. (1999a). Babies are not what we thought: Call for a new paradigm. *Journal of Prenatal and Perinatal Psychology and Health, 14*(1-2), 127-144. Retrieved from https://birthpsychology.com/journals/volume-14-issue-12/babies-are-not-what-we-thought-call-new-paradigm

Chamberlain, D. B. (1999b). Babies don't feel pain: A century of denial in medicine. *Journal of Pre- and Perinatal Psychology and Health, 14*(1-2), 145-168. Retrieved from https://birthpsychology.com/journals/volume-14-issue-12/babies-dont-feel-pain-century-denial-medicine

Chamberlain, D. B. (1999c). Foundations of sex, love and relationships: From conception to birth. *Journal of Prenatal and Perinatal Psychology and Health, 14*(1-2), 45-64. Retrieved from https://birthpsychology.com/journals/volume-14-issue-12/foundations-sex-love-and-relationships-conception-birth

Chamberlain, D. B. (1999d). Life in the womb: Dangers and opportunities. *Journal of Prenatal and Perinatal Psychology and Health, 14*(1), 31-43. Retrieved from https://birthpsychology.com/journals/volume-14-issue-12/life-womb-dangers-and-opportunities

Chamberlain, D. B. (1999e). Prenatal body language: A new perspective on ourselves. *Journal of Prenatal and Perinatal Psychology and Health, 14*(1), 169-186. Retrieved from https://birthpsychology.com/journals/volume-14-issue-12/prenatal-body-language-new-perspective-ourselves

Chamberlain, D. B. (1999f). Transpersonal adventures in prenatal and perinatal hypnotherapy. *Journal of Prenatal and Perinatal Psychology and Health, 14*(1-2), 85-93. Retrieved from https://birthpsychology.com/journals/volume-14-issue-12/transpersonal-adventures-prenatal-and-perinatal-hypnotherapy

Chamberlain, D. B. (2003). Communicating with the mind of a prenate: Guidelines for parents and birth professionals. *Journal of Prenatal and Perinatal Psychology and Health, 18*(2), 95-108. Retrieved from https://birthpsychology.com/journals/volume-18-issue-2/communicating-mind-prenate-guidelines-parents-and-birth-professionals

Chamberlain, D. B. (2011). The sentient prenate: What every parent should know. *Journal of Prenatal and Perinatal Psychology and Health, 26*(1), 37-59. Retrieved from https://birthpsychology.com/journals/%5Bfield_article_issue_reference-title-raw%5D/sentient-prenate-what-every-parent-should-know

Chamberlain, D. B. (2013). *Windows to the womb: Revealing the conscious baby from conception to birth.* Berkeley, CA: North Atlantic Books.

Chamberlain, D. B. (2014). The prenatal psyche: Evidence for a new perspective. *Journal of Prenatal and Perinatal Psychology and Health, 28*(4), 288-296. Retrieved from https://birthpsychology.com/journals/volume-28-issue-4/prenatal-psyche-evidence-new-perspective

Champagne, F. A., & Rissman, E. F. (2011). Behavioral epigenetics: A new frontier in the study of hormones and behavior. *Hormones and Behavior, 59*(3), 277-278. doi: 10.1016/j.yhbeh.2011.02.011

Chandran, M., Tharyan, P., Muliyil, J., & Abraham, S. (2002). Post-partum depression in a cohort of women from a rural area in Tamil Nadu, India: Incidence and risk factors. *The British Journal of Psychiatry, 181*, 599-504. doi: 10.1192/bjp.181.6.499

Charandabi, S. M., Mirghafourvand, M., & Sanaati, F. (2017). The effect of life style based education on the fathers' anxiety and depression during pregnancy and postpartum periods: A randomized controlled trial. *Community Mental Health Journal, 53*(4), 482-489. doi: 10.1007/s10597-017-0103-1

Charil, A., Laplante, D. P., Vaillancourt, C., & King, S. (2010). Prenatal stress and brain development. *Brain Research Review, 65*(1), 56-79. doi: 10.1016/j.brainresrev.2010.06.002

Cheek, D. B. (1986). Prenatal and perinatal imprints: Apparent prenatal consciousness as revealed by hypnosis. *Journal of Pre- and Perinatal Psychology and Health, 1*(2), 97-110. Retrieved from https://birthpsychology.com/journals/volume-1-issue-2/prenatal-and-perinatal-imprints-apparent-prenatal-consciousness-revealed-h

Chen, M., & Zhang, L. (2011). Epigenetic mechanisms in developmental programming of adult disease. *Drug Discovery Tody: Disease models, 16*(23-24), 1007-1018. doi: 10.1016/j.drudis.2011.09.008

Chitty, J. (2013). *Dancing with yin and yang: Ancient wisdom, modern psychotherapy and Randolph Stone's polarity therapy.* Boulder, CO: Polarity Press.

Christensen, D. (2000). Weight matters, even in the womb. *Science News, 158*(24), 382-383. doi: 10.2307/4018717

Chung-Park, M. S. (2012). Knowledge, opinions, and practices of infant sleep position among parents. *Military Medicine, 177*(2), 235-239. doi: 10.7205/milmed-d-11-00323

Church, D. (2009). *The genie in your genes: Epigenetic medicine and the new biology of intention* (2nd ed.). Santa Rosa, CA: Energy Psychology Press.

Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The Psychologist, 26* (2), 120-123. Retrieved from http://eprints.uwe.ac.uk/21155/3/Teaching%20thematic%20analysis%20Research%20Repository%20version.pdf

Clifton, V. L. (2010). Review: Sex and the human placenta: Mediating differential strategies of fetal growth and survival. *Placenta, 31,* S33-S39. doi: 10.1016/j.placenta.2009.11.010.

Cobb, S. (1976). Presidential address-1976: Social support as a moderator of life stress. *Psychosomatic Medicine, 38*(5), 300-314. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/981490

Coley, S. L., & Nichols, T. R. (2016). Understanding factors that influence adolescent mothers' doula use: A qualitative study. *The Journal of Perinatal Education, 25*(1), 46-55. doi: 10.1891/1058-1243.25.1.46

Collins, C. L., Dunkel Schetter, C., Lobel, M., & Scrimshaw, S. C. (1993). Social support in pregnancy: Psychosocial correlates of birth outcomes and postpartum depression. *Journal of Personality and Social Psychology, 65*(6), 1243-1258. doi: 10.1037/0022-3514.65.6.1243

Collins, C. L., & Fetsch, R. J. (2012). A review and critique of 16 major parent education programs. *Journal of Extension, 50*(4), 4-21. Retrieved from https://www.joe.org/joe/2012august/a8.php

Comings, J. P., Beder, H., Reder, S., Bingman, B., & Smith, C. (2003). *Establishing an evidence-based adult education system*. Cambridge, MA: National Center for the Study of Adult Learning and Literacy.

Condon, J. (2006). What about dad? Psychosocial and mental health issues for new fathers. *Australian Family Physician, 35*(9), 690-692. Retrieved from http://search.informit.com.au/documentSummary;dn=362306160948596;res=IELHEA

Connell, R. W. (1995). *Masculinities*. London, England: Polity Press.

Consonni, E. B., Calderon, I. M. P., Consonni, M., De Conti, M., Prevedel, T. T. S., & Rudge, M. V. C. (2010). A multidisciplinary program of preparation for childbirth and motherhood: Maternal anxiety and perinatal outcomes. *Reproductive Health, 7*, 28-33. doi: 10.1186/1742-4755-7-28

Corcoran, K. M., Farb, N., Anderson, A., & Segal, Z. V. (2010). Mindfulness and emotion regulation: Outcomes and possible mediating mechanisms. In A. M. Kring & D. M. Sloan (Eds.), *Emotion regulation and psychopathology: A transdiagnostic approach to etiology and treatment* (pp. 339-355). New York, NY: Guildford Press.

Correia, I. B. (1994). *The impact of television stimuli on the prenatal infant* (Unpublished doctoral thesis), University of New South Wales, Sydney, Australia.

Cowan, C. P. (1992). *When partners become parents: The big life change for couples*. New York, NY: Basic Books.

Cowan, W. M. (1979). The development of the brain. *Scientific American, 241*(3), 113-133. Retrieved from http://www.jstor.org/stable/24965291?seq=1#page_scan_tab_contents

Cowan, C. P., & Cowan, P. A. (1995). Interventions to ease the transition to parenthood: Why they are needed and what they can do. *Family Relations, 44*(4), 412-423. doi: 10.2307/584997

Cowan, C. P., & Cowan, P. A. (2000). *When partners become parents*. New York, NY: Basic Books.

Cox, J. T., & Phelan, S. T. (2008). Nutrition during pregnancy. *Obstetrics Gynecology Clinics of North America, 35*(3), 369-383. doi: 10.1016/j.ogc.2008.04.001

Coyne, J. (2013). Parenting from the outside-in: Reflections on parent training during a potential paradigm shift. *Australian Psychologist, 48*(5), 379-387. doi: 10.1111/ap.12010

Cranley, M. S. (1981). Development of a tool for the measurement of maternal attachment during pregnancy. *Nursing Research, 30*(5), 281-284. doi: 10.1097/00006199-198109000-00008

Crawford, D., & Huston, T. (1993). The impact of the transition to parenthood on marital leisure. *Personality and Social Psychology Bulletin, 19*(1), 39-46. doi:10.1177/0146167293191005

Creswell, J. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage.

Cunningham, S. D., Lewis, J. B., Thomas, J. L., Grilo, S. A., & Ickovics, J. R. (2017). Expect With Me: Development and evaluation design for an innovative model of group prenatal care to improve perinatal outcomes. *BMC Pregnancy and Childbirth, 17*(1), 147. doi: 10.1186/s12884-017-1327-3

Cust, F. (2016). Peer support for mothers with postnatal depression: A pilot study. *Community Practitioner, 89*(1), 38-41. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/26911102

Cutrona, C. E., & Troutman, B. R. (1986). Social support, infant temperament, and parenting self-efficacy: A mediational model of postpartum depression. *Child Development, 57*(6), 1507-1518. doi: 10.2307/1130428

Cyna, A. M., Andrew, M. I., Robinson, J. S., Crowther, C. A., Baghurst, P., Turnbull, D., … Whittle, C. (2006). Hypnosis antenatal training for childbirth (HATCh): A randomised controlled trial. *BMC Pregnancy Childbirth, 5*(6), 5-17. doi: 10.1111/1471-0528.12320

Dabrassi, F., Imbasciati, A., & Vedova, A. M. D. (2010). Maternity social support. *Journal of Prenatal and Perinatal Psychology and Health, 24*(3), 158-173. Retrieved

from https://birthpsychology.com/journals/volume-24-issue-3/maternity-social-support

Da Costa, D., Drista, M., Verreault, N., Balaa, C., Kudzman, J., & Khalife, S. (2010). Sleep problems and depressed mood negatively impact health-related quality of life during pregnancy. *Archives of Women's Mental Health, 13*(3), 249-257. doi: 10.1007/s00737-009-0104-3

Darwin, Z., Galdas, P., Hinchcliff, S., Littlewood, E., McMillan, D., McGowan, L., & Gilbody, S. (2017). Fathers views and experiences of their own mental health during pregnancy and the first postnatal year: A qualitative interview study of men participating in the UK Born and Bred in Yorkshire (BaBY) cohort. *BMC Pregnancy and Childbirth, 17*(1), 45-56. doi: 10.1186/s12884-017-1229-4

Davis, D. M., & Hayes, J. A. (2011). What are the benefits of mindfulness? A practice review of psychotherapy-related research. *Psychotherapy, 48*(2), 198-208. doi: 10.1037/a0022062

Davis, J., Vyankandondera, J., Luchters, S., Simon, D., & Holmes, W. (2016). Male involvement in reproductive, maternal and child health: A qualitative study of policymaker and practitioner perspectives in the Pacific. *Reproductive Health, 13*(1), 81-92. doi: 10.1186/s12978-016-0184-2

Dawson, L., Rhodes, P., & Touyz, S. W. (2015). Defining recovering from anorexia nervosa: A Delphi study to determine expert practitioners' views. *Advances in Eating Disorders: Theory, Research and Practice, 3*(2), 165-176. doi:10.1080/21662630.2015.1009145

Dawson, M. T., & Brucker, P. S. (2001). The utility of the Delphi method in MFT research. *The American Journal of Family Therapy, 29*(2), 125-140. doi: 10.1080/01926180126229

DeBord, K. (2016). U.S. Cooperative extension parent educator's framework. In J. J. Ponzetti, Jr. (Ed.), *Evidence-based parenting education: A global perspective* (pp. 64-82). New York: NY, Routledge.

Delbecq, A. L., Van de Ven, A. H., & Gustafson, D. H. (1975). *Group techniques for program planning: A guide to nominal and Delphi processes*. Glenview, IL, USA: Scott, Foresman and Co.

Della Vedova, A. M., & Burro, R. (2017). Surveying prenatal attachment in fathers: The Italian adaptation of the Paternal Antenatal Attachment Scale (PAAS-IT). *Journal of Reproductive and Infant Psychology, 35*(5), 493-508. doi: 10.1080/02646838.2017.1371284

Dellmann, T. (2004). "The best moment of my life": A literature review of fathers' experience of childbirth. *Australian Midwifery, 17*(3), 20-26. doi:10.1016/S1448-8272(04)80014-2

Department of Health Maternity Services (2017). *Information on maternity services for pregnant women and those planning pregnancy, and for health care professionals*. Retrieved from http://www.health.gov.au/maternity

Deslauriers, J. M., Devault, A., Groulx, A. P., & Sevigny, R. (2012). Rethinking services for young fathers. *Fathering, 10*(1), 66-90. doi: 10.3149/fth.1001.66

Desroches, S., Lapointe, A., Deschenes, S. M., Bissonnette-Maheux, M., Gravel, K., Thirsk, J., & Legare, F. (2015). Dieticians' perspectives on interventions to enhance adherence to dietary advice for chronic diseases in adults. *Canadian Journal of Dietetic Practice and Research, 76*(3), 103-108. doi: 10.3148/cjdpr-2015-009

DeWeerth, C., van Hees, Y., & Buitelaar, J. K. (2003). Prenatal maternal cortisol levels and infant behaviour during the first 5 months. *Early Human Development, 74*(2003), 139-151. doi: 10.1016/S0378-3782(03)00088-4

Dey, I. (1993). *Qualitative data analysis: A user-friendly guide for social scientists*. London, England: Routledge.

Dhillon, A., Sparkes, E., & Duarte, R. V. (2017). Mindfulness-based interventions during pregnancy: A systematic review and meta-analysis. *Mindfulness, 8*(6), 1421-1437. doi: 10.1007/s12671-017-0726-x

Dick-Read, G. (1944). *Childbirth without fear: The principles and practice of natural childbirth*. New York, NY: Harper and Brothers.

Diemer, G. A. (1997). Expectant fathers: Influence of perinatal education on stress, coping, and spousal relations. *Research in Nursing and Health, 20*(4), 281-293. doi: 10.1002(SICI)1098-240X(199708)20:4<281::AID-NUR2>3.0.CO;2-C

Dietl, A., Cupisti, S., Beckmann, M. W., Schwab, M., & Zollner, U. (2015). Pregnancy and obstetrical outcomes in women over 40 years of age. *Geburtshilfe Frauenheilkd, 75*(8), 827-832. doi: 10.1055/s-0035-1546109

Dion, M. R. (2005). Healthy marriage programs: Learning what works. *Future of Children, 15*(2), 139-156. doi:10.1353/foc.2005.0016

Doherty, W. J., Erickson, M. F., & LaRossa, R. (2006). An intervention to increase father involvement and skills with infants during the transition to parenthood. *Journal of Family Psychology, 20*(3), 438-447. doi: 10.1037/0893-3200.20.3.438

Donald, I. (1980). Sonar: It's present status in medicine. In A. Jurjak (Ed.), *Progress in medical ultrasound* (1: 001–04). Amsterdam: Excerpta Medica.

Doss, B. D., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2009). The effect of the transition to parenthood on relationship quality: An eight-year prospective study. *Journal of Personality and Social Psychology, 96*(3), 601-619. doi: 10.1037/a0013969

Doughty, F. M. (2007). Sending and receiving: Biochemical communication of emotions between prenate and mother: A call for early intervention. *Journal of Prenatal and Perinatal Psychology and Health, 21*(3), 281-303. Retrieved from https://birthpsychology.com/journals/volume-21-issue-3/sending-and-receiving-biochemical-communication-emotions-between-prenate-

Dragonas, T., & Christodoulou, G. N. (1998). Prenatal care. *Clinical Psychology Review, 18*(2), 127-142. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/9543622

Driver, R., & Oldham, V. (1986). A constructivist approach to curriculum development in science. *Studies in Science Education, 13*(1), 105-122. doi: 10.1080/03057268608559933

Duffield, C. (1993). The Delphi technique: A comparison of results obtained using two expert panels. *International Journal of Nursing Studies, 30*(3), 227-237. doi: 10.1016/0020-7489(93)90033-Q

Duncan, L., & Bardacke, N. (2010). Mindfulness-based childbirth and parenting education: Promoting family mindfulness during the perinatal period. *Journal of Child and Family Studies, 19*(2), 190-202. doi: 10.1007/s10826-009-9313-7

Duncan, L. G., Cohn, M. A., Chao, M. T., Cook, J. G., Riccobono, J., & Bardacke, N. (2017). Benefits of preparing for childbirth with mindfulness training: A randomized controlled trial with active comparison. *BMC Pregnancy and Childbirth, 17*(1), 140. doi: 10.1186/s12884-017-1319-3

Dunkel Schetter, C., Sagrestano, L.M., Feldman, P., & Killingsworth, C. (1996). Social support and pregnancy. In G. R. Pierce, B. R. Sarason, & I. G. Sarason (Eds.), *Handbook of social support and the family* (pp. 375-412). New York, NY: Plenum Press.

Dunkel Schetter, C., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: Implications for mothers, children, research, and practice. *Current Opinion in Psychiatry, 25*(2), 141-148. doi:10.1097/YCO.0b013e3283503680

Dunn, C., Hanieh, E., Roberts, R., & Powrie, R. (2012). Mindful pregnancy and childbirth: Effects of a mindfulness-based intervention on women's psychological distress and wellbeing in the perinatal period. *Archives of Women's Mental Health, 15*(2), 139-143. doi: 10.1007/s00737-012-0264-4

Dunneram, Y., & Jeewon, R. (2015). Healthy diet and nutrition education program among women of reproductive age: A necessity of multilevel strategies or community responsibility. *Health Promotion Perspectives, 5*(2), 116-127. doi: 10.15171/hpp.2015.014

Eastwood, J., Ogbo, F. A., Hendry, A., Noble, J., Page, A., & Early Years Research Group. (2017). The impact of antenatal depression on perinatal outcomes in Australian women. *PLoS One, 12*(1), e0169907. doi: 10.1371/journal.pone.0169907

Edhborg, M., Lundh, W., Seimyr, L., & Widstrom, A. M. (2003). The parent-child relationship in the context of maternal depressive mood. *Archives of Women's Mental Health, 6*(3), 211-216. doi: 10.1007/s00737-003-0020-x

Edmonds, J. K., Paul, M., & Sibley, L. M. (2011). Type, content, and source of social support perceived by women during pregnancy: Evidence from Matlab, Bangladesh. *Journal of Health, Population and Nutrition, 29*(2), 163-172. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3126989/

Edvardsson, K., Ivarsson, A., Eurenius, E., Garvare, R., Nystrom, M. E., Small, R., & Mogren, I. (2011). Giving offspring a healthy start: Parents' experiences of health promotion and lifestyle change during pregnancy and early parenthood. *BMC Public Health, 11*, 936-949. doi: 10.1186/1471-2458-11-936

Eggers, R. M., & Jones, C. M. (1998). Practical considerations for conducting Delphi studies: The oracle enters a new age. *Educational Research Quarterly, 21,* 53-66. Retrieved from https://eric.ed.gov/?id=EJ571165

Eichhorn, N. (2012). Maternal fetal attachment: Can acceptance of fetal sentience impact the maternal-fetal attachment relationship? *Journal of Prenatal and Perinatal Psychology and Health, 27*(1), 47-55. Retrieved from https://birthpsychology.com/journals/volume-27-issue-1/maternal-fetal-attachment-can-acceptance-fetal-sentience-impact-maternal-

Elliston, D., McHale, J., Talbot, J., Parmley, M., & Kuersten-Hogan, R. (2008). Withdrawal from co-parenting interactions during early infancy. *Family Process, 47*(4), 481-499. doi: 10.1111/j.1545-5300.2008.00267.x/abstract

Elsinga, J., de Jong-Potjer, L. C., van der Pal-de Bruin, K. M., le Cessie, S., Assendelft, W. J., & Buitendijk, S. E. (2008). The effect of preconception counselling on lifestyle and other behaviour before and during pregnancy. *Women's Health Issues, 18*(6 suppl), 117-125. doi: 10.1016/j.whi.2008.09.003

Emerson, W. R. (1993). The vulnerable prenate. *Journal of Prenatal and Perinatal Psychology and Health, 10*(3), 125-142. Retrieved from https://birthpsychology.com/journals/volume-10-issue-3/vulnerable-prenate

Emerson, W. R. (1998). Birth trauma: The psychological effects of obstetrical interventions. *Journal of Prenatal and Perinatal Psychology and Health, 13*(1), 11-44. Retrieved from https://birthpsychology.com/journals/volume-13-issue-1/birth-trauma-psychological-effects-obstetrical-interventions

Essa, R. M., & Ismail, N. E. I. A. (2015). Effect of early maternal/newborn skin-to-skin contact after birth on the duration of third stage of labor and initiation of

breastfeeding. *Journal of Nursing Education and Practice, 5*(4), 98-108. doi: 10.5430/hnep.v5n4p98

Evans, S., Ferrando, S., Findler, M., Stowell, C., Smart, C., & Haglin, D. (2008). Mindfulness-based cognitive therapy for generalized anxiety disorder. *Journal of Anxiety Disorders, 22*(4), 716-721. doi:10.1016/j.janxdis.2007.07.005

Falzarano, M., & Pinto Zipp, G. (2013). Seeking consensus through the use of the Delphi technique in health sciences research. *Journal of Allied Health, 42*(2), 99-105. Retrieved from https://www.researchgate.net/profile/Mary_Falzarano/publication/237096795_Seeking_consensus_through_the_use_of_the_Delphi_technique_in_health_sciences_research/links/00b7d52710b637cc25000000/Seeking-consensus-through-the-use-of-the-Delphi-technique-in-health-sciences-research.pdf

Farb, N. A. S., Anderson, A. K., Mayberg, H., Bean, J., McKeon, D., & Segal, Z. V. (2010). Minding one's emotions: Mindfulness training alters the neural expression of sadness. *Emotion, 10*(2), 25-33. doi:10.1037/a0019263

Farrugia, P., Petrisor, B. A., Farrokhyar, F., & Bhandari, M. (2010). Research questions, hypothesis and objectives. *Canadian Journal of Surgery, 53*(4), 278-281. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2912019/

Fathers To Be (2015). *How important are fathers in families?* Retrieved from Fathers To Be website: http://fatherstobe.org/research.htm.

Fedor-Freybergh, P. G. (2002). Prenatal and perinatal psychology and medicine: New interdisciplinary science in the changing world. *Journal of Prenatal and Perinatal Psychology and Health, 16*(4), 305-321. Retrieved from https://birthpsychology.com/journals/volume-16-issue-4/prenatal-and-perinatal-psychology-and-medicine-new-interdisciplinary-scie

Feinberg, M. E., Roettger, M. E., Jones, D. E., Paul, I. M., & Kan, M. L. (2015). Effects of a psychosocial couple-based prevention program on adverse birth outcomes. *Maternal and Child Health Journal, 19*(1), 102-111. doi: 10.1007/s10995-014-1500-5

Feldman, P. J., Dunkel Schetter, C., Sandman, C. A., & Wadhwa, P. D. (2000). Maternal social support predicts birth weight and fetal growth in human pregnancy. *Psychosomatic Medicine, 62*, 715-725. doi: 10.1097/00006842-200009000-00016

Ferguson, J. M., & Vanderpool, R. C. (2013). Impact of a Kentucky maternal, infant, and early childhood home-visitation program on parental risk factors. *Journal of Child and Family Studies, 22*(4), 551-558. doi: 10.1007/s10826-012-9610-4

Ferreira, A. (1960). The pregnant mother's emotional attitude and its reflection upon the newborn. *American Journal of Orthopsychiatry, 30*, 553-561. doi: 10.1111/j.1939-0025.1960.tb02070.x

Ferreira, A. (1969). *Prenatal environment*. Springfield, MA: Thomas.

Fiander, M., & Burns, T. (1998). Essential components of schizophrenia care: A Delphi approach. *Acta Psychiatrica Scandinavica, 98*(5), 400-405. doi: 10.1111/j.1600-0447.1998.tb10105.x

Field, T., Diego, M., & Hernandez-Reif, M. (2010). Prenatal depression effects and interventions: A review. *Infant Behaviour and Development, 33*(4), 409-418. doi: 10.1016/j.infbeh.2010.04.005

Field, T., Diego, M., Hernandez-Reif, M., Medina, L., Delgado, J., & Hernandez, A. (2012). Yoga and massage therapy reduce prenatal depression and prematurity. *Journal of Bodywork and Movement Therapies, 16*(2), 201-209. doi: 10.1016/j.jbmt.2011.08.002

Field, T., Diego, M., Hernandez-Reif, M., Schanberg, S., Kuhn, C., Yando, R., & Bendell, D. (2003). Pregnancy anxiety and comorbid depression and anger: Effects on the fetus and neonate. *Depression and Anxiety, 17*(3), 140-151. doi: 10.1002/da.10071

Figley, C., & Nelson, T. (1990). Basic family therapy skills, I: Conceptualisation and initial findings. *Journal of Marital and Family Therapy, 15*(4), 349-365. doi: 10.1111/j.1752-0606.1989.tb00820.x

Fisher, B. L. (1986, February). *Theory Building: Delayed development in family life education.* Paper presented at The Symposium on Family Life Education. Brigham Young University, Provo, UT.

Fisher, J., Cabral de Mello, M., Patel, V., Rahman, A., Tran, T., Holton, S., & Homes, W. (2012). Prevalence and determinants of common perinatal mental disorders in women in low-and middle income countries: A systematic review. *Bulletin of the World Health Organization, 90,* 139-149. doi: 10.2471/BLT.11.091850

Fletcher, R. J., Matthey, S., & Marley, C. G. (2006). Addressing depression and anxiety among new fathers. *Medical Journal of Australia, 185*(8), 461-463. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/17137442

Fleuren, M., Wiefferink, K., & Paulussen, T. (2004). Determinants of innovation within health care organisations: Literature review and Delphi study. *International Journal of Quality in Health Care, 16*(2), 107-123. doi: 10.1093/intqhc/mzh030

Florsheim, P., Sumida, E., McCann, C., Winstanley, M., Fukui, R., Seefeldt, T., … Moore, D. (2003). Adjustment to parenthood among young African American and Latino couples: Relational predictors of risk for parental dysfunction. *Journal of Family Psychology, 17*(1), 65-79. doi: 10.1037//0893-3200.17.1.65

Folkman, S. (1997). Positive psychological states and coping with severe stress. *Social Science and Medicine, 45*(8), 1207-1221. doi: 10.1016/S0277-9536(97)00040-3

Fonagy, P. (2001). *Attachment theory and psychoanalysis.* New York, NY: Other Press.

Fugard, A. J. B., & Potts, H. W. W. (2015). Supporting thinking on sample sizes for thematic analyses: A quantitative tool. *International Journal of Social Research Methodology, 18*(6), 669-684. doi: 10.1080/13645579.2015.1005453

Fukkink, R., Vink, C., & Bosscher, N. (2014). *Think parents! Putting parents at the heart of parenting support*. Amsterdam: SWP.

Fulton, P. R. (2005). Mindfulness in clinical training. In C. K. Germer, R. D. Siegel, & P. R. Fulton (Eds.), *Mindfulness and psychotherapy* (pp. 55-72). New York, NY: Guildford Press.

Gabbe, P. T., Reno, R., Clutter, C., Schottke, T. F., Price, T., Calhoun, K., … Lynch, C. D. (2017). Improving maternal and infant child health outcomes with community-based pregnancy support groups: Outcomes from Moms2B Ohio. *Maternal and Child Health Journal, 21*(5), 1130-1138. doi: 10.1007/s10995-016-2211-x

Gambrel, L. E., & Piercy, F. P. (2015). Mindfulness-based relationship education for couples expecting their first child-part 2: Phenomenological findings. *Journal of Marital and Family Therapy, 41*(1), 25-41. doi: 10.1111/jmft.12065

Gausia, K., Fisher, C., Ali, M., & Oosthuizen, J. (2009). Magnitude and contributory factors of postnatal depression: A community-based cohort study from a rural subdistrict of Bangladesh. *Psychological Medicine, 39*(6), 999-1007. doi: 10.1017/S0033291708004455

Gazmararian, J. A., Dalmida, S. G., Merino, Y., Blake, S., Thompson, W., & Gaydos, L. (2014). What new mothers need to know: Perspectives from women providers in Georgia. *Maternal and Child Health Journal, 18*, 839-851. doi: 10.1007/s10995-013-1308-8

Geist, M. R. (2010). Using the Delphi method to engage stakeholders: A comparison of two studies. *Evaluation and Program Planning, 33*(2), 32-42. doi: 10.1016/j.evalprogplan.2009.06.006

George, A., Luz, R. F., De Tychey, C., Thilly, N., & Spitz, E. (2013). Anxiety symptoms and coping strategies in the perinatal period. *BMC Pregnancy and Childbirth, 13*, 233-239. doi: 10.1186/1471-2393-13-233

Germer, C. K. (2012). Cultivating compassion in psychotherapy. In C. K. Germer, & R. D. Siegal (Eds.), *Wisdom and compassion in psychotherapy: Deepening mindfulness in clinical practice* (pp. 93-110). New York, NY: Guilford.

Gervai, J. (2009). Environmental and genetic influences on early attachment. *Child Adolescent Psychiatry Mental Health, 3*, 25-37. doi: 10.1186/1753-2000-3-25

Giallo, R., D'Esposito, F., Cooklin, A., Mensah, F., Lucas, N., Wade, C., … Nicholson, J. (2013). Psychosocial risk factors associated with fathers' mental health in the postnatal period: Results from a population-based study. *Social Psychiatry and Psychiatric Epidemiology, 48*(4), 563-573. doi: 10.1007/s00127-012-0568-8

Giardinelli, L., Innocenti, A., Benni, L., Stefanini, M. C., Lino, G., Lunardi, C., … Faravelli, C. (2012). Depression and anxiety in perinatal period: Prevalence and risk factors in an Italian sample. *Archives of Women's Mental Health, 15*(1), 21-30. doi: 10.1007/s00737-011-0249-8

Gibson, A. (2016). Transforming the subject matter expert into an educator: Gaining competitive advantage by applying adult learning principles. *Journal of Protective Coatings & Linings, 33*(7), 44-49. Retrieved from https://search.proquest.com/openview/6d0580d8b59af6268a3f866cdb38442e/1?pq-origsite=gscholar&cbl=36623

Gilliland, A. L., & Verny, T. R. (1999). The effects of domestic abuse on the unborn child. *Journal of Prenatal and Perinatal Psychology and Health, 13*(3), 235-246. Retrieved from https://birthpsychology.com/journals/volume-13-issue-34/effects-domestic-abuse-unborn-child

Glied, S., & Oellerich, D. (2014). Two-generation programs and health. *The Future of Children, 24*(1), 79-97. doi: 10.1016/j.jhealeco.2006.03.001

Glover, V. (1999). Maternal stress or anxiety during pregnancy and the development of the baby. *The Practicing Midwife, 2*(5), 20-22. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/12024606

Glover, V., & Hill, J. (2012). Sex differences in the programming effects of prenatal stress on psychopathology and stress responses: An evolutionary perspective. *Physiology and Behaviour, 106*(5), 736-740. doi: 10.1016/j.physbeh.2012.02.011

Glover, V., & Sutton, C. (2012). Support from the start: Effective programmes in pregnancy. *Journal of Children's Services, 7*(1), 8-17. doi: 10.1108/17466661211213634

Glynn, L. M., Dunkel Schetter, C., Wadhwa, P. D., & Sandman, C. A. (2004). Pregnancy affects appraisal of negative life events. *Journal of Psychosomatic Research, 56*, 47-52. doi: 10.1016/s0022-3999(03)00133-8

Godin, K. M., Alton, G. D., Gangodawilage, H. P., Procter, T. D., Bourdages, N. B., Blue, S. E., … Horan, M. J. (2015). Knowledge change associated with participation in prenatal education programs in Ontario: A cohort study. *Canadian Journal of Public Health, 106*(6), e401-e407. doi: 10.17269/CJPH.106.5057

Goldberg, A. E., & Perry-Jenkins, M. (2004). Division of labor and working-class women's wellbeing across the transition to parenthood. *Journal of Family Psychology, 18*(1), 225-236. doi:10.1037/0893-3200.18.1.225

Goldin, P. R., & Gross, J. J. (2010). Effects of mindfulness-based stress reduction (MBSR) on emotion regulation in social anxiety disorder. *Emotion, 10*, 83-91. doi: 10.1037/a0018441

Goodman, C. M. (1987). The Delphi technique: A critique. *Australian Journal of Advanced Nursing*, *53*(2), 729-734. doi: 10.1111/j.1365-2648.1987.tb01376.x

Goodman, J. H. (2004). Paternal postpartum depression, its relationship to maternal postpartum depression, and implications for family health. *Journal of Advanced Nursing*, *45*(1), 26-35. doi: 10.1046/j.1365-2648.2003.02857.x

Goodman, J. H., Guarino, A., Chenausky, K., Klein, L., Prager, J., Peterson, R., … Freeman, M. (2014). CALM pregnancy: Results of a pilot study of mindfulness-based cognitive therapy for perinatal anxiety. *Archives of Women's Mental Health, 17*, 373-387. doi: 10.1007/s00737-013-0402-7

Gopnik, A., Meltzoff, A. N., & Kuhl, P. K. (1999). *The scientist in the crib: What early learning tells us about the mind*. New York, NY: Perennial.

Gordon, I., & Feldman, R. (2009). Synchrony in the triad: A microlevel process model of co-parenting and parent-child interactions. *Family Process, 47*(4), 465-479. doi: 10.1111/j.1545-5300.2008.00266.x

Gottman, J.M., Driver, J., & Tabares, A. (2002). Building the sound marital house: An empirically-derived couple therapy. In A. S. Gurman, N. S. & Jacobson (Eds.), *Clinical handbook of couple therapy* (3rd ed.) (pp. 569-593). New York, NY: Guilford Press.

Gottman, J. M., Shapiro, A. F., & Parthemer, J. (2004). Bringing baby home: A workshop for new and expectant parents. *International Journal of Childbirth Education, 19*(3), 28-30. Retrieved from http://icea.org/about/icea-journal/

Grafstein, B. (1963). Postnatal development of the transcallosal evoked response in the cerebral cortex of the cat. *Journal of Neurophysiology, 26*, 79-99. Retrieved from http://mbbsdost.com/Postnatal-development-transcallosal-evoked-response-cerebral-cortex-cat-Journal-neurophysiology-GRAFSTEIN-B--1963-Jan/pubmed/1903408

Gray, R., & McCormick, M. C. (2005). Early childhood intervention programs in the US: Recent advances and future recommendations. *The Journal of Primary Prevention, 26*(3), 259-275. doi: 10.1007/s10935-005-3600-x

Greeson, J., Garland, E. L., & Black, D. (2014). Mindfulness: A trans-therapeutic approach for transdiagnostic mental processes. In A. Ie., C. T. Ngnoumen, & E. J. Langer (Eds.), *The Wiley Blackwell handbook of mindfulness* (chap. 28). New Jersey, NY: John Wiley & Sons. doi: 10.1002/9781118294895

Grille, R. (2005). *Parenting for a peaceful world*. Woollahara, NSW: Longeuville Media.

Grof, S. (1985). *Beyond the brain: Birth, death and transcendence in psychotherapy*. New York, NY: State University of New York Press.

Grote, N. K., & Clark, M.S. (2001). Perceiving unfairness in the family: Cause or consequence of marital distress? *Journal of Personality and Social Psychology*, *80*(2), 281–293. doi: 10.1037/0022-3514.80.2.281

Gruber, K. J., Cupito, S. H., & Dobson, C. F. (2013). Impact of doulas on healthy birth outcomes. *The Journal of Perinatal Education, 22*(1), 49-56. doi: 10.1891/1058-1243.22.1.49

Guelinckx, I., Devlieger, R., Mullie, P., & Vasant, G. (2010). Effect of lifestyle intervention on dietary habits, physical activity, and gestational weight gain in obese pregnant women: A randomised controlled trial. *The American Journal of Clinical Nutrition, 91*(2), 373-380. doi: 10.3945/ajcn.200-9.28166

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods, 18*(1), 59-82. doi: 10.1177/1525822X05279903

Habib, C., & Lancaster, S. (2006). The transition to fatherhood: Identity and bonding in early pregnancy. *Fathering, 4*(3), 235-253. doi:10.3149/fth.0403.235

Halford, W. K. (2004). The future of couple relationship education: Suggestions on how it can make a difference. *Family Relations, 53*(5), 559-566. doi: 10.1111/j.0197-6664.2004.00065.x

Halford, W. K., Lizzio, A., Wilson, K. L., & Occhipinti, S. (2007). Does working at your marriage help? Couple relationship self-regulation and satisfaction in the first 4 years of marriage. *Journal of Family Psychology, 21,* 185-194. doi: 10.1037/0893-3200.21.2.185

Halford, W. K., Markman, H. J., Kline, G. H., & Stanley, S. M. (2003). Best practice in couple relationship education. *Journal of Marital and Family Therapy, 29*(3), 385-405. doi: 10.1111/j.1752-0606.2003.tb01214.x

Halford, W. K., & Petch, J. (2010). Couple psychoeducation for new parents' observed and potential effects on parenting. *Clinical Child and Family Psychology Review, 13*(2), 164-180. doi: 10.1007/s10567-010-0066-z

Halford, W. K., Petch, J., & Creedy, D. K. (2010). Promoting a positive transition to parenthood: A randomized clinical trial of couple relationship education. *Prevention Science, 11,* 89-100. doi: 10.1007/s11121-009-0152-y

Hallgreen, A., Kihlgren, M., Forslin, L., & Norberg, A. (1999). Swedish fathers' involvement in and experiences of childbirth preparation and childbirth. *Midwifery, 15*(1), 6-15. doi: 10.1016/S0266-6138(99)90032-3

Handfield, B., & Bell, R. (1995). Do childbirth classes influence decision making about labor and postpartum issues? *Birth, 22*(3), 153-160. doi: 10.1111/j.1523-536X.1995.tb00692.x

Hanna-Leena Melender, R. M. (2002). Experiences of fears associated with pregnancy and childbirth: A study of 329 pregnant women. *Birth, 29*(2), 101-111. doi: 10.1046/j.1523-536X.2002.00170.x

Hanson, S. M. H. (1985). Fatherhood contextual variations: Conceptual framework ecology. *The American Behavioural Scientist, 29*(1), 55-78. doi: 10.1177/000276485029001006

Harris, A., & Seckl, J. (2011). Glucocorticoids, prenatal stress, and the programming of disease. *Hormones and Behaviour, 59*(3), 279-289. doi: 10.1016/j.yhbeh.2010.007

Harrison, P. A., & Sidebottom, A. C. (2008). Systematic prenatal screening for psychosocial risks. *Journal of Health Care for the Poor and Undeserved, 19*, 258-276. doi: 10.1353/hpv.2008.0003

Hartmann, M., Gilles, K., Shattuck, D., Kerner, B., & Guest, G. (2012). Changes in couples' communication as a result of male-involvement in family planning intervention. *Journal of Health Communication, 17*(2), 802-819. doi: 10.1080/10810730.2011.650825

Harvey, I., & McGrath, G. (1988). Psychiatric morbidity in spouses of women admitted to a mother and baby unit. *British Journal of Psychiatry, 152*(4), 506–510. doi: 10.1192/bjp.152.4.506

Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing, 32*(4), 1008-1015. doi: 10.1046/j.1365-2648.2000.t01-1-01567.x

Hauck, Y., Fisher, C., Byrne, J., & Bayes, S. (2016). Mindfulness-based childbirth education: Incorporating adult and experiential learning with mindfulness-based stress reduction in childbirth education. *The Journal of Perinatal Education, 25*(3), 162-173. doi: 10.1891/1058-1243.25.3.162

Heath, H., & Palm, G. (2006). Future challenges for parenting education and support. *Child Welfare, 85*(5), 885-895. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/17168460

Heinowitz, J. (1995). *Pregnant fathers: Entering parenthood together*. San Diego, CA: Parents as Partners Press.

Heinowitz, J. (2001). *Fathering right from the start: Straight talk about pregnancy, birth, and beyond*. Novato, CA: New World Library.

Hejblum, G., Lambotte, O., Galicier, L., Coppo, P., Marzac, C., Aumont, C., & Fardet, L. (2014). A web-based Delphi study for eliciting helpful criteria in the positive diagnosis of hemophagocytic syndrome in adult patients. *PLoS One, 9*(4), 1-6. doi: 10.1371/journal.pone.0094024

Helmer, O. (1966). *Social technology*. New York: Basic Books.

Hendrick, V. (1998). Evaluation of mental health and depression during pregnancy. *Psychopharmacology Bulletin, 34*(3), 297-299. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/9803758

Hicks, M. W., & Williams, J. W. (1981). Current challenges in educating for parenthood. *Family Relations, 30*(4), 579-584. doi: 10.2307/584347

Hildingsson, I., & Haggstrom, T. (1999). Midwives' lived experiences of being supportive to prospective mothers/parents during pregnancy. *Midwifery, 15*(2), 82-91. doi:10.1016/S0266-6138(99)90003-7

Hinde, R. A., & Stevenson-Hinde, J. (1988). *Relationships within families: Mutual influences*. Cambridge, England: Cambridge University Press.

Hobbs, D. F., & Cole, S. P. (1976). Transition to parenthood: A decade replication. *Journal of Marriage and Family, 38*(4), 723-731. doi: 10.2307/350691

Hobfoll, S. E., Dunahoo, C. L., Ben-Porath, Y., & Monnier, J. (1994). Gender and coping: The dual-axis model of coping. *American Journal of Community Psychology, 22*(1), 49-82. doi: 10.1007/BF02506817

Hoffman, S., & Hatch, M. C, (1996). Stress, social support and pregnancy outcome: A reassessment based on recent research. *Paediatric and Perinatal Epidemiology*, *10*(4), 380-405. doi: 10.1111/j.1365-3016.1996.tb00063.x

Hoffman, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 78*(2), 169-183. doi: 10.1037/a0018555

Hohmann-Marriott, B. (2009). The couple context of pregnancy and its effects on prenatal care and birth outcomes. *Maternal and Child Health Journal, 13*(6), 745-754. doi:10.1007/s10995-009-0467-0

Holey, E., Feeley, J., Dixon, J., & Whittaker, V. (2007). An exploration of the use of simple statistics to measure consensus and stability in Delphi studies. *BMC Medical Research Methodology, 7*(1), 52-62. doi: 10.1186/1471-2288-7-52

Hollins Martin, C. J., & Fleming, V. (2011). The birth satisfaction scale. *International Journal of Health Care Quality Assurance, 24*(2), 124-135. doi: 10.1108/09526861111105086

Hollins Martin, C. J., & Robb, Y. (2013). Women's views about the importance of education in preparation for childbirth. *Nurse Education in Practice, 13,* 512-518. doi: 10.1016/j.nepr.2013.02.013

Hruby, R., & Fedor-Freybergh, P. G. (2013). Prenatal and perinatal medicine and psychology towards integrated neurosciences: General remarks and future perspectives. *Journal of Prenatal and Perinatal Psychology and Health, 28*(2), 76-100. Retrieved from https://birthpsychology.com/node/2070

Hsu, C. C., & Sandford, B. A. (2007). The Delphi technique: Making sense of consensus. *Practical Assessment, Research and Evaluation, 12*(10), 1-8. doi: 10.1108/03090590710820060

Hughes, A., Williams, M., Bardacke, N., Duncan., L.G., Dimidjian, S., & Goodman, S. H. (2009). Mindfulness approaches to childbirth and parenting. *British Journal of Midwifery, 17*(10), 630-635. doi:10.12968/bjom.2009.17.10.44470

Hughes, D. A., & Baylin, J. (2012). *Brain-based parenting: The neuroscience of caregiving for healthy attachment*. New York, NY: Norton.

Hui, A. L., Ludwig, S. M., Gardiner, P., Sevenhuysen, G., Murray, R., Morris, M., … Shen, G. X. (2006). Community-based exercise and dietary intervention during pregnancy: A pilot study. *Canadian Journal of Diabetes, 30*(2), 169-175. doi: 10.1016/s1499-2671(06)02010-7

Huizink, A. C., Menting, B., De Moor, M. H. M., Verhage, M. L., Kunseler, F. C., Schuenge, C., & Oosterman, M. (2017). From prenatal anxiety to parenting stress: A longitudinal study. *Archives of Women's Mental Health, 20*(5), 663-672. doi: 10.1007/s00737-017-0746-5

Huizink, A. C., Robles de Medina, P. G., Mulder, E. J. H., Visser, G. H. A., & Buitelaar, J. K. (2002a). Psychological measures of prenatal stress as predictors of infant temperament. *Journal of the American Academy of Adolescent Psychiatry, 41*(9), 1078-1085. doi: 10.1097/00004583-200209000-00008

Huizink, A. C., Robles de Medina, P. G., Mulder, E. J. H., Visser, G. H. A., & Buitelaar, J. K. (2002b). Coping in normal pregnancy. *Annals of Behavioral Medicine, 24*(2), 132-140. doi: 10.1207/S15324796ABM2402_10

Huizink, A. C., Robles de Medina, P. G., Mulder, E. J. H., Visser, G. H. A., & Buitelaar, J. K. (2003). Stress during pregnancy is associated with developmental outcome in infancy. *Journal of Child Psychology and Psychiatry, 44*, 810-818. doi: apa.org/journals/dev/21/6/1152.pdf

Humphries, H., & Nolan, M. (2015). Evaluation of a brief intervention to assist health visitors and community practitioners to engage with fathers as part of the healthy child initiative. *Primary Health Care Research and Development, 16*(4), 367-376. doi: 10.1017/s1463423615000031

Hussaini, S. K., Holley, P., & Ritenour, D. (2011). Reducing low birth weight infancy: Assessing the effectiveness of the Health Start Program in Arizona. *Maternal and Child Health Journal, 15*(2), 225-233. doi: 10.1007/s10995-009-0556-0

Iqbal, S., & Pipon-Young, L. (2009). The Delphi method. *Methods, 22*(7), 598-600. Retrieved from https://thepsychologist.bps.org.uk/volume-22/edition-7/delphi-method

Isgut, M., Smith, A. K., Reimann, E. S., Kucuk, O., & Ryan, J. (2017). The impact of psychological distress during pregnancy on the developing fetus: Biological mechanisms and the potential benefits of mindfulness interventions. *Journal of Perinatal Medicine, 45*(9), 999-1011. doi: 10.1015/jpm-2016-0189

Ivanovski, B., & Malhi, G. S. (2007). The psychological and neurophysiological concomitants of mindfulness forms of meditation. *Acta Neuropsychiatrica, 19*(2), 76-91. doi:10.1111/j.1601-5215.2007.00175.x

Jackson, C. P. (1995). The association between childbirth education, infant birthweight, and health promotion behaviors. *The Journal of Perinatal Education, 4*(1), 27-33. Retrieved from http://www.springerpub.com/the-journal-of-perinatal-education.html

Jackson, D. B. (2017). The interplay between early father involvement and neonatal medical risk in the prediction of infant neurodevelopment. *Prevention Science, 18*(1), 106-115. doi: 10.1007/s11121-016-0734-4

Jaddoe, V. W. V. (2009). Antenatal education programmes: Do they work? *The Lancet, 374*(9693), 863-864. doi: 10.1016/S0140-6736(09)61610-X

James, D., & Warren-Forward, H. (2015). Research methods for formal consensus development. *Nurse Researcher, 22*(3), 35-43. doi: 10.7748/nr.22.3.35.e1297

James, T., & Shephard, D. (2010). *Presenting magically: Transforming your stage presence with NLP*. Bethel, CT: Crown House.

Janov, A. (1983). *Imprints: The lifelong effects of the birth experience*. New York, NY: Coward McCann.

Janov, A. (2009). Life before birth: How experience in the womb can affect our lives forever. *Journal of Prenatal and Perinatal Psychology and Health, 23*(3), 143-184. Retrieved from https://birthpsychology.com/keywords/primal-health/primal-therapy

Janov, A. (2015). Epigenetics and primal therapy. *Activitas Nervosa Superior, 57*(3-4), 87-100. doi: 10.1007/BF03379941

Jenkins, D. A., & Smith, T. E. (1994). Applying Delphi methodology in family therapy research. *Contemporary Family Therapy, 16*(5), 411- 430. doi: 10.1007/BF02197902

Johansson, A. M., Landahl, I., & Adolfsson, A. (2011). How the health care nurse supports and enhances the child's attachment to their parents. *International Journal of Clinical Medicine, 2*, 418-428. doi: 10.4236/ijcm.2011.24070

Johnson, K. (2001). Bonding and spirituality. *Midwifery Today, 58*, 18-20. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/12154706

Jolivet, R., & Corry, M. (2010). Steps toward innovative childbirth education: Selected strategies for the blueprint for action. *The Journal of Perinatal Education, 19*(3), 17-20. doi: 10.1624/105812410X514422

Jomeen, J., & Martin, C. R. (2005). The factor structure of the Cambridge Worry Scale in early pregnancy. *Journal of Prenatal and Perinatal Psychology and Health, 20*(1), 25-48. Retrieved from https://birthpsychology.com/journals/volume-20-issue-1/factor-structure-cambridge-worry-scale-early-pregnancy

Jon, R. G., & Turner, T. G. N. (2007). Global perspectives: Urgency for prenatal education© 2007. *Journal of Prenatal and Perinatal Psychology & Health, 21*(4), 341-362. Retrieved from https://birthpsychology.com/journals/volume-21-issue-4/global-perspectives-urgency-prenatal-education%C2%A9-2007

Jones, J., & Hunter, D. (1995). Consensus methods for medical and health services research. *BMJ, 311*(7001), 376-380. doi: 10.1136/bmj.311.7001.376

Jones, C. C., Jomeen, J., & Hayter, M. (2014). The impact of peer support in the context of perinatal mental illness: A meta-ethnography. *Midwifery, 30*(5), 491-498. doi: 10.1016/j.midw.2013.08.003

Jongen, C., McCalman, J., Bainbridge, R., & Tsey, K. (2014). Aboriginal and Torres Strait Islander maternal and child health and wellbeing: A systematic search of programs and services in Australian primary health care settings. *BMC Pregnancy and Childbirth, 14*, 251-271. doi:10.1186/1471-2393-14-251

Joyce, T. (1990). The dramatic increase in rate of low birthweight in New York City: An aggregate time-series analysis. *American Journal of Public Health, 80*(6), 682-684. doi: 10.2105/AJPH.80.6.682

Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness*. New York, NY: Delacorte.

Kalil, K. M., Gruber, J. E., Conley, J., & Sytniac, M. (1993). Social and family pressures on anxiety and stress during pregnancy. *Journal of Prenatal and Perinatal Psychology and Health*, *8*(2), 113-118. Retrieved from https://birthpsychology.com/journals/volume-8-issue-2/social-and-family-pressures-anxiety-and-stress-during-pregnancy

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, method, and research. *Psychological Bulletin, 118*(1), 3-34. doi: 10.1037/0033-2909.118.1.3

Karoley, L. A., Greenwood, P. W., Everingham, S. S., Hoube, J., Kilburn, M. R., Rydell, C. P., … Chiesa, J. (1998). *Investing in our children: What we know and don't know about the costs and benefits of early childhood interventions*. Santa Monica, CA: RAND.

Katz-Wise, S. L., Priess, H. A., & Hyde, J. S. (2010). Gender-role attitudes and behavior across the transition to parenthood. *Developmental Psychology, 46*(1), 18-28. doi:10.1037/a0017820

Kaye, D. K., Othman, K., Nakimuli, A., Osinde, M. O., Mbainda, S. N., & Kakande, N. (2014). Male involvement during pregnancy and childbirth: Men's perceptions, practices and experiences during the care for women who developed childbirth complications in Mulago Hospital, Uganda. *BMC Pregnancy and Childbirth, 14*, 54-62. doi: 10.1186/1471-2393-14-54

Kearney, L., Kynn, M., Craswell, A., & Reed, R. (2017). The relationship between midwife-led group-based versus conventional antenatal care and mode of birth: A matched

cohort study. *BMC Pregnancy and Childbirth, 17*, 39-46. doi: 10.1186/s12884-016-1216-1

Keeney, S., Hasson, F., & McKenna, H. (2006). Consulting the oracle: Ten lessons from using the Delphi technique in nursing research. *Journal of Advanced Nursing, 52*(2), 205-212. doi: 10.1111/j.1365-2648.2006.03716.x

Keeney, S., Hasson, F., & McKenna, H. (2011). *The Delphi technique in nursing and health research*. Oxford, England: Wiley-Blackwell.

Kenny, L. C., Lavender, T., McNamee, R., O'Neill, S. M., Mills, T., & Khashan, A. S. (2013). Advanced maternal age and adverse pregnancy outcome: Evidence from a large contemporary cohort. *PLoS One, 8*(2), e56583-e56592. doi: 10.137/1/journal.pone.0056583

Kermeen, P. (1995). Improving postpartum marital relationships. *Psychological Reports, 76*(3 Part 1), 831-831. doi: 10.2466/pr0.1995.76.3.831

Kim, T. H. M., Connolly, J. A., & Tamim, H. (2014). The effect of social support around pregnancy on postpartum depression among Canadian teen mothers and adult mothers in the maternity experiences survey. *BMC Pregnancy and Childbirth, 14*(1), 162-170. doi:10.1186/1471-2393-14-162

Kingston, A. H., Morgan, A. J., Jorm, A. F., Hall, K., Hart, L. M., Kelly, C. M., & Lubman, D. I. (2011). Helping someone with problem drug use: A Delphi consensus study of consumers, carers, and clinicians. *BMC Psychiatry, 11*, 3-10. doi: 10.1186/1471-244X-11-3

Kingston, D., Tough, S., & Whitfield, H. (2012). Prenatal and postpartum maternal psychological distress and infant development: A systematic review. *Child Psychiatry and Human Development, 43*, 683-714. doi: 10.1007/s10578-012-0291-4

Kiselica, M. S. (2008). *When boys become parents*. New Jersey, USA: Rutgers University Press.

Kitzman, H., Olds, D. L., Henderson, C. R., Hanks, C., Cole, R., Tatelbaum, R., … Barnard, K. (1997). Effect of prenatal and infancy home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing: A randomised controlled trial. *JAMA, 27*(8), 644-652. doi: 10.1001/jama.278.8.644

Klaus, M. H., & Kennell, J. H. (1982). *Parent-infant bonding* (2nd ed.). St. Louis, MI: Mosby Company.

Klaus, M. H., Kennell, J. H., & Klaus, P. H. (1995). *Bonding: Building the foundations of secure attachment and independence*. Reading, MA: Addison-Wesley.

Kluny, R. (2011). *Your baby remembers: Parenting with a deep heart from the start*. Austin, TX: 21st Century Baby Press.

Kluny, R., & Dillard, D. M. (2014). Babies remember: Preserving wholeness with prenatal bonding and self-care. *International Journal of Childbirth Education, 29*(4), 32-38. Retrieved from http://childbirth287.rssing.com/chan-15619910/latest.php

Knopik, V. S., Maccani, M. A., Francazio, S., & McGeary, J. E. (2012). The epigenetics of maternal cigarette smoking during pregnancy and effects on child development. *Development and Psychopathology, 24*(4), 1377-1390. doi: 10.1017/s0954579412000776

Koleva, H., Stuart, S., O'Hara, M. W., & Bowman-Reif, J. (2011). Risk factors for depressive symptoms during pregnancy. *Archives of Women's Mental Health*, 14, 99-105. doi: 10.1007/s00737-010-0184-0

Koontz, J. L. (2009). *Stress, social support, health and human-animal bond in single mothers* (Unpublished doctoral thesis), Northcentral University, Arizona, USA.

Korfmacher, J., O'Brien, R., Hiatt, S., & Olds, D. (1999). Differences in program implementation between nurses and paraprofessionals providing home visits during pregnancy and infancy: A randomised trial. *American Journal of Public Health, 89*(12), 1847-1851. doi: 10.2105/AJPH.89.12.1847

Korja, R., Nolvi, S., Grant, K. A., & McMahon, C. (2017). The Relations between maternal prenatal anxiety or stress and child's early negative reactivity or self-regulation: A systematic review. *Child Psychiatry and Human Development, 48*(6), 851-869. doi: 10.1007/s10578-017-0709-0

Koushede, V., Brixval, C. S., Thygesen, L. C., Axelsen, S. F., Winkel, P., Lindschou, J., Gluud, C., & Due, P. (2017). Antenatal small-class education versus auditorium-based lectures to promote positive transitioning to parenthood: A randomised trial. *PLoS One, 12*(5), e0176819. doi: 10.1371/journal.pone.0176819

Lake, F. (1981). *Tight corners in pastoral counselling*. London, England: Daron, Longman, and Todd.

Lake, F. (1982). *With respect: A doctor's response to a healing pope*. London, England: DLT.

Lamaze, F. (1958). *Painless childbirth: Psychoprophylactic method*. London, England: Burke.

Lamb, M. E. (2004). *The role of the father in child development* (4th ed.). New Jersey, USA: Wiley.

Lamb, M. E., Pleck, J. H., Charnov, E. L., & Levine, J. A. (1987). A biosocial perspective on paternal behavior and involvement. In J. Lancaster, J. Altmann, A. Rossi, & L. Sherrod (Eds.), *Parenting across the lifespan: Biosocial dimensions* (pp. 111-142). Hawthorne, NY: Aldine.

Lancaster, C. A., Gold, K. J., Flynn, H. A., Yoo, H., Marcus, S. M., & Davis, M. M. (2010). Risk factors for depressive symptoms during pregnancy: A systematic review. *American Journal of Obstetrics & Gynecology, 202*(1), 5-14. doi: 10.1016/j.ajog.2009.09.007

Landy, C. K., Jack, S. M., Wahoush, O., Sheehan, D., & MacMillan, H. L. (2012). Mothers' experiences in the Nurse-Family Partnership program: A qualitative case study. *BMC Nursing, 11,* 15-27. doi: 10.1186/1472-6955-11-15

LaRossa, R., & LaRossa, M. M. (1981). *Transition to parenthood: How infants change families*. Beverly Hills, CA: Sage.

Laustsen, S., & Brahe, L. (2015). Applying the Delphi method to generate interventions to reduce unnecessary interruptions in clinical nursing. *Nordic Journal of Nursing Research, 35*(4), 249-255. doi: 10.1177/0107409315603630

Laycock, S.R. (1967). *Family living and sex education: A guide for parents and youth leaders*. Toronto: Mil-Mac Publications.

Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. New York, NY: Springer.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.

Lefmann, T., & Combs-Orme, T. (2014). Prenatal stress, poverty, and child outcomes. *Child and Adolescent Social Work Journal, 31,* 577-590. doi: 10.1007/s10560-014-0340-x

LeMasters, E. E. (1957). Parenthood as a crisis. *Marriage and Family Living, 19,* 352-355. doi: 10.2307/347802

Leibenberg, B. (1973). Techniques in prenatal counselling. In P. Shereshefsky & L. J Yarrow (Eds.), *Psychological aspects of a first pregnancy and early postnatal adaptation* (pp. 123-150). New York, NY: Raven Press.

Leifer, M. (1980). *Psychological effects of motherhood: A study of first pregnancy*. New York, NY: Praeger.

Leigh, B., & Milgrom, J. (2008). Risk factors for antenatal depression, postnatal depression and parenting stress. *BioMed Central Psychiatry, 8*, 24-35. doi: 10.1186/1471-244X-8-24

Letourneau, N., Secco, L., Colpitts, J., Aldous, S., Stewart, M., & Dennis, C. L. (2015). Quasi-experimental evaluation of a telephone-based peer support intervention for maternal depression. *Journal of Advanced Nursing, 71*(7), 1587-1599. doi: 10.1111/jan.12622

Leung, B. M., Letourneau, N. L., Giesbrecht, G. F., Ntanda, H., Hart, M., & APrON Team. (2017). Predictors of postpartum depression in partnered mothers and fathers from a longitudinal cohort. *Community Mental Health Journal, 53*(4), 420-431. doi: 10.1007/s10597-016-0060-0

Lewis-Rowley, M., Brasher, R. E., Moss, J. J., Duncan, S. F., & Stiles, R. J. (1993). The revolution of education for family life. In M. E. Arcus, J. D. Schvaneveldt, & J. J. Moss (Eds.), *Handbook of family life education: Vol. 1. Foundations of family life education* (pp. 26-50). Newbury Park, CA: Sage.

Li, W. H., Gu, Z., Wang, H., & Nekrutenko, A. (2001). Evolutionary analyses of the human genome. *Nature, 409*(6822), 847-849. doi: 10.1038/35057039

Liamputton, P., & Naksook, C. (2003). Perceptions and experiences of motherhood, health and the husbands role among Thai women in Australia. *Midwifery, 19*(1), 27-36. doi: 10.1054/midw.2002.0333

Liber, J.M., van Widenfelt, B. M., Goedhart, A. W., Utens, E. M. W. J., van der Leeden, A. J. M., & Markus, M. T. (2008). Parenting and parental anxiety and depression as predictors of treatment outcome for childhood anxiety disorders: Has the role of

fathers been underestimated? *Journal of Clinical Child and Adolescent Psychology, 37*, 747-758. doi: 10.1080/15374410802359692

Liley, A.W. (1972). The foetus as a personality. *Australian and New Zealand Journal of Psychiatry, 6*(2), 99-105. doi: 10.3109/00048677209159688

Linstone, H. A., & Turoff, M. (Eds.). (2002). *The Delphi method: Techniques and applications*. Boston, MA: Addison-Wesley.

Lipton, B. H. (1998). Nature, nurture and the power of love. *Journal of Prenatal and Perinatal Psychology and Health, 13*(1), 3-10. Retrieved from https://birthpsychology.com/content/nature-nurture-and-power-love-biology-conscious-parenting-new-science-how-parents-shape-char

Lipton, B. H. (1999). The evolving science of chiropractic philosophy: Part II. *Today's Chiropractic, 28*(6), 20-31. Retrieved from http://www.todayschiropractic.com/

Lipton, B. H. (2001a). Insight into cellular consciousness. *Bridges, 12*(1), 5-9. Retrieved from https://www.brucelipton.com/resource/article/insight-cellular-consciousness

Lipton, B. H. (2001b). Nature, nuture and human development. *Journal of Prenatal and Perinatal Psychology and Health, 16*(2), 167-180. Retrieved from https://birthpsychology.com/journals/volume-16-issue-2/nature-nurture-and-human-development

Lipton, B. H. (2002). *Nature, nurture and the power of love: The biology of conscious parenting* [DVD]. USA: Spirit 2000 Inc.

Lipton, B. H. (2008). *The biology of belief: Unleashing the power of consciousness, matter and miracles*. Carlsbad, CA: Hay House.

Liu, D., Diorio, J., Tannenbaul, B., Caldji, C., Francis, D., Freedman, A., & Sharma, S. (1997). Maternal care, hippocampalglucocortoid reecptors and hypothalamic-

pituitary-adrenal responses to stress. *Science, 277*(5332), 1659-1662. doi: 10.1126/science.277.5332.1659

Logsdon, M. C., & Koniak-Griffin, D. (2005). Social support in postpartum adolescents: Guidelines for nursing assessments and interventions. *Journal of Obstetric, Gynaecologic, & Neonatal Nursing, 34*(6), 761-768. doi:10.1177/0884217505281855

Lombard, C. B., Deeks, A. A., Ball, K., Jolley, D., & Teede, H. J. (2009). Weight, physical activity and dietary behaviour change in young mothers: Short term results of the HeLP-her cluster randomised controlled trial. *Nutrition Journal, 8*, 17-26. doi: 10.1186/1475-2891-8-17

Long, N. (2016) Future trends in parenting education. In J. J. Ponzetti, Jr. (Ed.), *Evidence-based parenting education: A global perspective* (pp. 311-328). New York: NY, Routledge.

Longworth, D. W. (1952). Certification of teachers. *Marriage and Family Living, 14*, 103-104. doi: 10.2307/346615

Lotrecchiano, G. R., McDonald, P. L., Lyons, L., Long, T., & Zajicek-Farber, M. (2013). Blended learning: Strengths, challenges, and lessons learned in an interprofessional training program. *Maternal and Child Health Journal, 17*(9), 1725-1734. doi: 10.1007/s10995-012-1175-8

Loughlin, K., & Moore, L. (1979). Using Delphi to achieve congruent objectives and activities in a paediatrics department. *Journal of Medical Education, 54*(2), 101-106. Doi: 10.1097/00001888-197902000-00006

Lovkvist, M. (2012). Somatically informed parent-prenate psychotherapy. *Journal of Prenatal and Perinatal Psychology and Health, 27*(1), 56-65. Retrieved from https://birthpsychology.com/journals/volume-27-issue-1/somatically-informed-parent-prenate-psychotherapy

Lu, L. (2006). The transition to parenthood: Stress, resources, and gender differences in a Chinese society. *Journal of Community Psychology, 34*(4), 471–488. doi: 10.1002/jcop.20110

Ludwig, B. (1997). Predicting the future: Have you considered using the Delphi methodology? *Journal of Extension, 35*(5), 1-4. doi: 10.1016/j.techfore.2010.09.011

Lumley, J. (1980). The image of the fetus in the first trimester. *Birth and Family Journal, 7*(1), 5-14. doi: 10.1111/j.1523-536X.1980.tb01359.x

Lyman, B. J. (2011a). Prenatal and perinatal trauma case formulation: Toward an evidence-based assessment of the origins of repetitive behaviors in adults. *Journal of Prenatal and Perinatal Psychology and Health, 25*(4), 235-263. Retrieved from https://birthpsychology.com/journals/volume-22-issue-3/prenatal-and-perinatal-trauma-case-formulation-toward-evidence-based-asse

Lyman, B. J. (2011b). Prenatal and perinatal psychotherapy with adults: An integrative model for empirical testing. *Journal of Prenatal and Perinatal Psychology and Health, 25*(4), 215-234. Retrieved from https://birthpsychology.com/journals/volume-25-issue-4/prenatal-and-perinatal-psychotherapy-adults-integrative-model-empirical-t

Lynch, C. E., Magann, E. F., Barringer, S. N., Ounpraseuth, S. T., Eastham, D. G., Lewis, S. D., & Stowe, Z. N. (2014). Pet therapy program for antepartum high-risk pregnancies: A pilot study. *Journal of Perinatology, 34*(11), 816-818. doi: 10.1038/jp.2014.120

MacDermid, S. M., Huston, T. L., & McHale, S. M. (1990). Changes in marriage associated with the transition to parenthood: Individual differences as a function of sex-role attitudes and changes in the division of household labor. *Journal of Marriage and Family, 52*(2), 475-486. doi: 10.2307/353041

McCall, G. J., & Simmons, J. L. (1978). *Identities and interactions. An examination of human associations in everyday life* (Rev. ed.). New York, NY: Free Press.

McCarty, W. A. (2005). Nurturing the possible: Supporting the integrated self from the beginning of life. *Shift: At the Frontiers of Consciousness, 6,* 18-20. Retrieved from https://www.innersource.net/ep/energy-psych-interactive/14.html

McCarty, W. A. (2009). *Welcoming consciousness: Supporting babies' wholeness from the beginnings of life*. Santa Barbara, CA: Wonderous Beginnings Publishing.

McCarty, W. A. (2013). EFT for the beginnings of life: Supporting wholeness, human potential, and optimal relationships. In D. Church & S. Marohn (Eds.), *Clinical EFT handbook: A definitive resource for practitioners, scholars, clinicians and researchers, volume 2* (chap. 47). Fulton, CA: Energy Psychology Press.

McCraty, R., Bradley, T. R., & Tomasino, D. (2004). The resonant heart. *Shift: At the Frontiers of Consciousness, 5,* 15-19. Retrieved from https://www.heartmath.org/research/research-library/relevant-publications/the-resonant-heart/

McElwain, N. L., & Volling, B. L. (2004). Attachment security and parental sensitivity during infancy: Associations with friendship quality and false-belief understanding at age 4. *Journal of Social and Personal Relationships, 21*(5), 639-667. doi: 10.1177/0265407504045892

McGowan, P. O., & Szyf, M. (2010). The epigenetics of social adversity in early life: Implications for mental health outcomes. *Neurobiology of Disease, 39*(1), 66-72. doi: 10.1016/j.nbd.2009.12.026

McKee, C., Stapleton, P., & Pidgeon, A. (2017). Support during pregnancy as an influencing factor on the transition to parenthood. *Journal of Prenatal and Perinatal Psychology and Health, 32*(2), 99-127. Retrieved from https://birthpsychology.com/journals/support-during-pregnancy-influencing-factor-transition-parenthood-christine-mckee-peta

McKee, C. L., Stapleton, P. B., & Pidgeon, A. M. (2018). Mindfulness: The power of a parent's intentional influence on a prenate. *The International Journal of Healing and Caring, 17*(1), 1-23. Retrieved from http://www.ijhc.org/2017/12/mindfulness-the-power-of-a-parents-intentional-influence-on-a-prenate/

McLeish, J., & Redshaw, M. (2017). Mothers' accounts of the impact on emotional wellbeing of organised peer support in pregnancy and early parenthood: A qualitative study. *BMC Pregnancy and Childbirth, 17*, 28-43. doi: 10.1186/s12884-017-1220-0

McQueeney, D., Stanton, A., & Sigmon, S. (1997). Efficacy of emotion-focussed and problem-focussed group therapies for women with fertility problems. *Journal of Behavioral Medicine, 20*(4), 313-331. doi:1025560912766

Mace, D., & Mace, V. (1986). The history and present status of the marriage and family enrichment movement. In W. Denton (Ed.), *Marriage and family enrichment* (pp. 7-18). New York, NY: Haworth.

Magnani, L. (2017). Prenatal and perinatal communication: An urgent call for action. *Journal of Prenatal and Perinatal Psychology and Health, 31*(4), 300-304. Retrieved from https://birthpsychology.com/journals/prenatal-and-perinatal-communication-urgent-call-action-luisella-magnani

Maldonado-Duran, J. M., Lartigue, T., & Feintuch, M. (2000). Perinatal psychiatry: Infant mental health interventions during pregnancy. *Bulletin of the Menninger Clinic, 64*(3), 317-343. Retrieved from https://search.proquest.com/openview/5ea45be443ac1e94b9b6cb4cf7a2d6a9/1?pq-origsite=gscholar&cbl=1818298

Malone, S. (2014). Characteristics of adult learners. *Training and Development, 41*(6), 10-13. Retrieved from http://search.informit.com.au/documentSummary;dn=827295107033026;res=IELBUS

Mander, R. (2004). *Men and maternity*. New York, NY: Routledge.

Marsiglio, W. (1997). Fatherhood scholarship. In W. Marsigilio (Ed.), *Fatherhood: Contemporary theory, research and social policy* (pp. 1-19). Thousand Oaks, CA: Sage.

Martin, M. (2003). *Birth and attachment: How to totally support your baby from here on*. Nelson, BC: Kutenai Institute.

Martin, J. A., Brady, H. E., Osterman, M. J. K., Driscoll, A. K., & Mathews, M. S. (2017). Births: Final data for 2015. *National Vital Statistics, 66*(1), 1-70. Retrieved https://www.cdc.gov/nchs/data/nvsr/nvsr66/nvsr66_01.pdf

Martin, L., McNamara, M., Milot, A., Halle, T., & Hair, E. (2007). The effects of father involvement during pregnancy on receipt of prenatal care and maternal smoking. *Maternal and Child Health Journal, 11*(6), 595-602. doi:10.1007/s10995-007-0209-0

Mathews, T. J., & Hamilton, B. E. (2016). Mean age of mothers is on the rise: United States, 2000–2014. *NCHS Data Brief, 232*, 1-8. Retrieved from *https://www.cdc.gov/nchs/data/databriefs/db232.pdf*

Matthey, S., Barnett, B., Howie, P., & Kavanagh, D. J. (2003). Diagnosing postpartum depression in mothers and fathers: Whatever happened to anxiety? *Journal of Affective Disorders, 74*(2), 139-147. doi: 10.1016/S0165-0327(02)00012-5

Meaney, M. J. (2010). Epigenetics and the biological definition of gene x environment interactions. *Child Development, 81*(1), 41-79. doi: 10.1111/j.1467-8624.2009.01381.x

Mehl-Madrona, L. E. (2002). Psychosocial variables predict complicated birth. *Journal of Prenatal and Perinatal Psychology and Health, 17*(1), 3-28. Retrieved from

https://birthpsychology.com/journals/volume-17-issue-1/psychosocial-variables-predict-complicated-birth

Meloni, M. (2014). The social brain meets the reactive genome: Neuroscience, epigenetics and the new social biology. *Frontiers in Human Neuroscience, 8*(30), 309-321. doi: 10.3389/fnhum.2014.0030

Meloni, M., & Testa, G. (2014). Scrutinizing the epigenetics revolution. *Bio Societies, 9*(4), 431-456. doi: 10.1057%2Fbiosoc.2014.22

Mercer, J. S., Vohr, B. R., McGrath, M. M., Padbury, J. F., Wallach, M., & Oh, W. (2006). *Pediatrics, 114*(4), 1235-1242. doi: 10.1542%2Fpeds.2005-1706

Merriam-Webster Incorporated (2018). Doula. *Merriam-Webster dictionary*. Retrieved from http://www.merriam-webster.com/dictionary/doula

Meshkat, B., Cowman, S., Gethin, G., Ryan, K., Wiley, M., Brick, A., … Mulligan, E. (2014). Using an e-Delphi technique in achieving consensus across disciplines for developing best practice in day surgery in Ireland. *Journal of Hospital Administration, 3*(4), 1-8. doi: 10.5430/jha.v3n4p1

Meyrick, J. (2003). The Delphi method and research. *Health Education, 103*, 7-16. doi: 10.1108/09654280310459112

Michaud, E. (2012). The potential effects of contemplative practices on the cultivation of empathic attunement in mothers. *Journal of Prenatal and Perinatal Psychology and Health, 27*(1), 66-74. Retrieved from https://birthpsychology.com/journals/volume-27-issue-1/potential-effects-contemplative-practices-cultivation-empathic-attunement

Midmer, D., Wilson, L., & Cummings, S. (1995). A randomised controlled trial of the influence of prenatal parenting education on postpartum anxiety and marital adjustment. *Family Medicine, 27*(3), 200-205. doi: 10.1111/j.1365-2702.2008.02773.x

Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis: A sourcebook of new methods*. California, USA: Sage.

Milgrom, J., Gemmill, A. W., Bilszta, J. L., Hayes, B., Barnett, B., Brooks, J., … Buist, A. (2008). Antenatal risk factors for postnatal depression: A large prospective study. *Journal of Affective Disorders, 108*(1-2), 147-157. doi: 10.1016/j.jad.2007.10.014

Millar, R. (2003). Benchmarking best practices in adult learning centres. *Canadian Association for the Study of Adult Education,* University of Winnipeg, MB, Canada. Retrieved from *http://www.casae-aceea.ca/~casae/sites/casae/archives/cnf2003/2003_papers/rojomillar_finalCAS03.pdf*

Miller, J. P., & Seller, W. (1990). *Curriculum, perspectives and practice*. Mississauga, Canada: Copp Clark Pittman.

Moore, T., & Kotelchuck, M. (2004). Predictors of urban fathers' involvement in their child's health care. *Pediatrics, 113*(3 Part 1), 574-580. doi: 10.1037/a0025696

Morse, C. A., Buist, A., & Durkin, S. (2000). First-time parenthood: Influences on pre- and postnatal adjustment in fathers and mothers. *Journal of Psychosomatic Obstetrics & Gynecology, 21*(2), 109-120. doi:10.3109/01674820009075616

Mortensen, Ø., Torsheim, T., Melkevik, O., & Thuen, F. (2012). Adding a baby to the equation: Married and cohabiting women's relationship satisfaction in the transition to parenthood. *Family Process, 51*(1), 122-139. doi:10.1111/j.1545-5300.2012.01384.x

Muller, D., Teismann, T., Havemann, B., Michalak, J., & Seehagen, S. (2013). Ruminative thinking as a predictor of perceived post-partum mother-infant bonding. *Cognitive Therapy and Research, 37,* 89-96. doi: 10.1007/s10608-012-9454-7

Mutale, T, Creed, F., Maresh, M., & Hunt, L. P. (1991). Life events and low birth weight: Analysis by infants preterm and small for gestational age. *British Journal of*

*Obstetrics and Gynaecology, 98*(2), 166-172. doi: 10.1111/j.1471-0528.1991.tb13363.x

Nathanielsz, P. W. (1999). *Life in the womb: The origin of health and disease*. Ithaca, NY: Promethean Press.

National Council on Family Relations. (1984). *Standards and criteria for the certification of family life educators, college/university curriculum guidelines, and content guidelines for family life education: A framework for planning programs over the life span*. Minneapolis, MN: Author.

National Nursing Research Unit. (2013). *Why health visiting? A review of the literature about key health visitor interventions, processes and outcomes for children and families*. King's College, London: London.

Naziri, D., & De Coster, L. (2006). The experience of perinatal parenthood and the construction of paternal identity. *Journal of Prenatal and Perinatal Psychology and Health, 20*(3), 263-280. Retrieved from https://birthpsychology.com/journals/volume-20-issue-3/experience-perinatal-parenthood-and-construction-paternal-identity

Nemoda, Z., & Szyf, M. (2017). Epigenetic alterations and prenatal maternal depression. *Birth Defects Research, 109*(12), 888-897. doi: 10.1002/bdr2.1081

Neuhauser, L., Constantine, W. L., Constantine, N. A., Sokal-Gutierrez, K., Obarski, S. K., Clayton, L., … Syme, S. L. (2007). Promoting prenatal and early childhood health: Evaluation of a state-wide materials-based intervention for parents. *American Journal of Public Health, 97*(10), 1813-1819. doi: 10.2105/AJPH.2006.089532

Newnham, J.P., Evans, S. F., Michael, C. A., Stanley, F. J., & Landau, L. I. (1991). Effects of frequent ultrasound during pregnancy: A randomised controlled trial. *The Lancet, 342*, 887–90. doi: 10.1016/0140-6736(93)91944-H

Nhiwatiwa, S., Patel, V., & Acuda, W. (1998). Predicting postnatal mental disorder with a screening questionnaire: A prospective cohort study from Zimbabwe. *Journal of Epidemiology & Community Health, 52*(4), 262-266. doi: 10.1136/jech.52.4.262

Nijhout, H. F. (1990). Metaphors and the role of genes in development. *BioEssays, 12*(9), 441-446. doi: 10.1002/bies.950120908

Nolan, M. (2015). Why it is important to involve new fathers in the care of their child. *Primary Health Care, 25*(3), 18-23. doi: 10.7748/phc.25.3.18.e943

Nolan, M. (2017). Planning, implementing and evaluating a parent education programme. *Primary Health Care, 27*(4), 19-27. doi: 10.7748/phc.2017.e1217

Nolan, M. L. (1997). Antenatal education: What next? *Journal of Advanced Nursing, 25*, 1198-1204. doi: 10.1046/j.1365-2648.1997.19970251198.x

Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology, 100*(4), 569-582. doi: 10.1037//0021-843X.100.4.569

Nomaguchi, K. M., & Milkie, M. A. (2003). Costs and rewards of children: The effects of becoming a parent on adults' lives. *Journal of Marriage and Family, 65*(2), 356-374. doi: 10.1111/j.1741-3737.2003.00356.x

Northwest Center for Public Health Practice (NWCPHP). (2014). *Effective adult learning: A toolkit for teaching adults.* Seattle, WA: Author.

Nugent, J. K. (1991). Cultural and psychological influences on the father's role in infant development. *Journal of Marriage and Family, 53*(2), 475-485. doi: 10.2307/352913

Oberlander, T. F., Weinberg, J., Papsdorf, M., Grunau, R., Misti, S., & Devlin, A. M. (2008). Prenatal exposure to maternal depression, neonatal methylation of human glucocorticoid receptor gene (NR3C1) and infant cortisol stress responses. *Epigenetics, 3*(2), 97-106. doi: org.10.4161/epi.3.2.6034

O'Connor, T. G., Heron, J., Golding, J., Beveridge, M., & Glover, V. (2002). Maternal antenatal anxiety and children's behavioural/emotional problems at 4 years. Report from the Avon Longitudinal Study of Parents and Children. *British Journal of Psychiatry, 180*(6), 502-508. doi: 10.1192/bjp.180.6.502

O'Donnell, K. A., Gaudreau, H., Colalillo, S., Steiner, M., Atkinson, L., Moss, E., … Meaney, M. J. (2014). The maternal adversity, vulnerability and neurodevelopment project: Theory and methodology. *Canadian Journal of Psychiatry, 56*(9), 497-508. doi: 10.1177/070674371405900906

O'Donnell, K. J., Bugge Jensen, A., Freeman, L., Khalife, N., O'Connor, T. G., & Glover, V. (2012). Maternal prenatal anxiety and downregulation of placental 11β-HSD2. *Psychoneuroendocrinology, 37*(6), 818-826. doi:10.1016/j.psyneuen.2011.09.014

O'Donnell, K. J., O'Connor, T. G., & Glover, V. (2009). Prenatal stress and neurodevelopment of the child: Focus on the HPA axis and role of the placenta. *Developmental Neuroscience, 31*, 285-292. doi: 10.1159/000216539

Oh, W., Fanaroff, A. A., Waldemar, A. C., Donovan E. F., McDonald, S. A., Poole, W. K., & Shriver, E. K. (2011). Effect of delayed cord clamping in very low birth weight infants. *Journal of Perinatology, 31*(Suppl 1), S68-S71. doi: 10.1038/jp.2010.186

O'Hara, M. W. (2009). Postpartum depression: What we know. *Journal of Clinical Psychology, 65*(12), 1258-1269. doi: 10.1002/jclp.20644

Okoli, C., & Pawlowski, S. D. (2004). The Delphi method as a research tool: An example, design considerations and applications. *Information and Management, 42*, 15-29. doi: 10.1016/j.im.2003.11.002

Olds, D. L. (2008). Preventing child maltreatment and crime with prenatal and infancy support of parents: The nurse-family partnership. *Journal of Scandinavian Studies in Criminology and Crime Prevention, 9*(S1), 2-24. doi: 10.1080/14043850802450096

Olds, D. L., Henderson, C. R., Chamberlain, R., & Tatelbaum, R. (1986). Preventing child abuse and neglect: A randomised trial of nurse home visitation. *Pediatrics, 78*(1), 65-78. doi: 10.1016/0190–7409(93)90045-B

Olds, D. L., Robinson, J., O'Brien, R., Luckey, D. W., Pettitt, L. M., Henderson, C. R., … Talmi, A. (2002). Home visiting by paraprofessionals and by nurses: A randomised, controlled trial. *Pediatrics, 110*(3), 486-496. Retrieved from http://fordschool.umich.edu/research/poverty/pdf/Olds_paper_2.pdf

Orr, S. T., James, S. A., & Blackmore Prince, C. (2002). Maternal prenatal depressive symptoms and spontaneous preterm births among African-American women in Baltimore, Maryland. *American Journal of Epidemiology, 156*(9), 797-802. doi:10.1093/aje/kwf131

Osofsky, J. D., & Osofsky, H. J. (1984). Psychological and developmental perspectives on expectant and new parenthood. In R. D. Parke (Ed.), *Review of child development research, Vol. 7, The family* (pp. 372-397). Chicago, USA: University of Chicago Press.

Paabo, S. (2001). The Human Genome and our view of ourselves. *Science, 291*(5507), 1219-1220. doi: 10.1126/Science.1059672

Palkovitz R. (1985). Fathers' birth attendance, early contact and extended contact with their newborns: A critical review. *Child Development, 56,* 392–406. doi: 10.1111/j.1467-8624.1985.tb00114.x

Pallant, J. (2013). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (5th ed.). Berkshire, England: McGraw Hill.

Panthuraamphorn, C. (1998). Prenatal infant stimulation program. *Journal of Prenatal and Perinatal Psychology and Health, 12*(3-4), 135-161. Retrieved from https://birthpsychology.com/journals/volume-12-issue-34/prenatal-infant-stimulation-program

Parfitt, Y., Pike, A., & Ayers, S. (2013). The impact of parents' mental health on parent-baby interaction: A prospective study. *Infant Behaviour and Development, 36*(4), 599-608. doi: 10.1016/j.infbeh.2013.06.003

Pawlby, S., Hay, D., Sharp, D., Waters, C. S., & Pariante, C. M. (2011). Antenatal depression and offspring psychopathology: The influence of childhood maltreatment. *The British Journal of Psychiatry: The Journal of Mental Science, 199*(2), 106-112. doi:10.1192/bjp.bp.110.087734

Peckham, H. (2013). Epigenetics: The dogma-defying discovery that genes learn from experience. *International Journal of Neuropsychotherapy, 1*, 9-20. doi: 10.12744/ijnpt.2013.0009.0020

Penfold, J. (2015). Family nurses focus on needs of young first-time mothers. *Primary Health Care, 25*(10), 8-9. doi: 10.7748/phc.25.10.8.s9

Petch, J., & Halford, W. K. (2008). Psycho-education to enhance couples' transition to parenthood. *Clinical Psychology Review, 28*(7), 1125-1137. doi: 10.1016/j.cpr.2008.03.005

Petch, J., Halford, W. K., Creedy, D. K., & Gamble, J. (2012). Couple relationship education at the transition to parenthood: A window of opportunity to reach high-risk couples. *Family Process, 51*(4), 498-511. doi: 10.1111/j.1545-5300.2012.01420.x

Phillips, A, C., Lewis, L. K., McEvoy, M., Galipeau, J., Glasziou, P., Hammick, M., …Williams, M. T. (2014). A Delphi survey to determine how educational interventions for evidence-based practice should be reported: Stage 2 of the

development of a reporting guideline. *BMC Medical Education, 14*, 159-170. doi: 10.1186/1472-6920-14-149

Phillips, R. (2013). The sacred hour: Uninterrupted skin-to-skin contact immediately after birth. *Newborn and Infant Nursing Reviews, 13*(2), 67-72. doi: 10.1053/j.nainr.2013.04.001

Pill, J. (1971). The Delphi method: Substance, context, a critique and an annotated bibliography. *Socio-Economic Planning Science, 5*(1), 57-71. doi: 10.1016/0038-0121(71)90041-3

Pinquart, M., & Teubert, D. (2010). A meta-analytic study of couple interventions during the transition to parenthood. *Family Relations, 59*(3), 221-231. doi:10.1111/j.1741-3729.2010.00597.x

Piotrowska, P. J., Tully, L. A., Kimonis, E., Hawes, D., Moul, C., Frick, P. J., … Dadds, M. R. (2017). Mothers, fathers, and parental systems: A conceptual model of parental engagement in programmes for child mental Health-Connect, Attend, Participate, and Enact (CAPE). *Clinical Child and Family Psychology Review, 20*(2), 146-161. doi: 10.1007/s10567-016-0219-9

Pisacane, A., Continisio, G. I., Aldinucci, M., D'Amora, S., & Continisio, P. (2005). A controlled trial of the father's role in breastfeeding promotion. *Pediatrics, 116*(4), e494-e498. doi: 10.1542/peds.2005-0479

Plantin, L., Mansson, S. A., & Kearney, J. (2003). Talking and doing fatherhood: On fatherhood and masculinity in Sweden and Britain. *Fathering, 1*(1), 3-26. doi: 10.3149/fth.0101.3

Plantin, L., Olukoya, A. A., & Ny, P. (2011). Positive health outcomes of fathers' involvement in pregnancy and childbirth paternal support: A scope study literature review. *Fathering, 9*(1), 87-102. doi:10.3149/fth.0901.87

Pluess, M., & Belsky, J. (2011). Prenatal programming of postnatal plasticity? *Development and Psychopathology, 23*, 29-38. doi: 10.1017/S0954579410000623

Polomeno, V. (2009). Advanced practice in perinatal education. *International Journal of Childbirth Education, 24*(1), 16-25. Retrieved from https://search.proquest.com/openview/f24962c4de0ff10ec2ed16b2c62e6695/1?pq-origsite=gscholar&cbl=32235

Ponzetti, J. J. (2016). Evidence-based parenting education: A global perspective. In J. J. Ponzetti (Ed.), *Overview and history of parenting education* (pp. 3-11). New York, NY: Routledge.

Porges, S. W. (1996). Physiological regulation in high-risk infants: A model for assessment and potential intervention. *Development and Psychopathology, 8*, 43-58. doi: 10.1017/S0954579400006969

Porges, S. W. (2004). Neuroception: A subconscious system for detecting threats and safety. *Zero to Three, 24*(5), 19-24. Retrieved from https://eric.ed.gov/?id=EJ938225

Porges, S. W. (2009). The polyvagal theory: New insights into adaptive reactions of the autonomic nervous system. *Cleveland Clinic Journal of Medicine, 76*(2), S86-S90. doi: 10.3949/ccjm.76.s2.17

Porges, S. W., & Furman, S. A. (2011). The early development of the autonomic nervous system provides a neural platform for social behaviour: A polyvagal perspective. *Infant Child Development, 20*(1), 106-118. doi: 10.1002/icd.688

Powell, C. (2003). The Delphi technique: Myths and realities. *Journal of Advanced Nursing, 41*(4), 376-382. doi: 10.1046/j.1365-2648.2003.02537.x

Premberg, A., Hellstrom, A. L., & Berg, M. (2008). Experiences of the first year as father. *Scandinavian Journal of Caring Sciences, 22*(1), 56-63. doi: 10.1111/j.1471-6712.2007.00584.x

Public Health Agency of Canada. (2009). *What mothers say: The Canadian Maternity Experiences survey*. Ottawa, ON: Government of Canada.

Quirk, K., Owen, J., Inch, L. J., France, T., & Bergen, C. (2014). The alliance in relationship education programs. *Journal of Marital and Family Therapy, 40*(2), 178-192. doi:10.1111/jmft.12019

Raeisi, K., Shariat, M., Nateri, F., Raji, F., & Dalili, H. (2013). The effects of trained fathers' participation in constant breastfeeding in Vali-E-Asr hospital. *Acta Medica Iranica, 52*(9), 694-696. doi: 10.1007/s12098-011-0441-x

Raffai, J. (1997). Mother-child bonding analysis in the prenatal realm. *International Journal of Prenatal and Perinatal Psychology and Medicine, 9*(4), 407-415. doi: 10.15406/ · jpnc.2015.03.00110

Rahman, A., Iqbal, Z., & Harrington, R. (2003). Life events, social support and depression in childbirth: Perspectives from a rural community in the developing world. *Psychological Medicine, 33,* 1161-1167. doi: 10.1017/S0033291703008286

Raikes, H. H., Summers, J. A., & Roggman, L. A. (2005). Father involvement in early head start programs. *Fathering*, *3*(1), 29-58. doi:10.3149/fth.0301.29

Ray, S., & Orr, S. (1983). *Rebirthing in a new age*. Berkeley, CA: Celestial Arts.

Redshaw, M., & Henderson, J. (2013). Fathers' engagement in pregnancy and childbirth: Evidence from a national survey. *BMC Pregnancy and Childbirth*, *13*(1), 70-85. doi:10.1186/1471-2393-13-70

Ree, M. J., & Craigie, M. A. (2007). Outcomes following mindfulness-based cognitive therapy in a heterogeneous sample of adult outpatients. *Behaviour Change*, *24*(2), 70-86. doi:10.1375/bech.24.2.70

Reichman, N. E., & Teitler, J. O. (2003). Effects of psychosocial risk factors and prenatal interventions on birth weight: Evidence from New Jersey's Health Start program.

*Perspectives on Sexual and Reproductive Health, 35*(3), 130-137. doi: 10.1363/3513003

Renzaho, A. M. N., & Oldroyd, J. C. (2014). Closing the gap in maternal and child health: A qualitative study examining health needs of migrant mothers in Dandenong, Victoria, Australia. *Maternal and Child Health Journal, 18*(6), 1391-1402. doi: 10.1007/s10995-013-1378-7

Ressler-Maerlender, J., & Sorensen, R. E. (2005). Circumcision: An informed choice. *Nursing for Women's Health, 9*(2), 146-150. doi: 10.1177/1091592305277052

Rice, F., Jones, I., & Thapar, A. (2007). The impact of gestational stress and prenatal growth on emotional problems in offspring: A review. *Acta Psychiatrica Scandinavica, 115*(3), 171-183. doi: 10.1111/j.1600-0447.2006.00895.x

Riddihough, G., & Pennisi, E. (2001). The evolution of epigenetics. *Science, 293*(5532), 1063. doi: 10.1126/science.293.5532.1063

Rifkin-Graboi, A., Borelli, J. L., & Bosquet Enlow, M. (2009). Neurobiology of stress in infancy. In C. H. Zeanah (Ed.), *Handbook of infant mental health* (pp. 59–79). New York, NY: Guilford Press.

Robbers, M. L. P. (2009). Facilitating fatherhood: A longitudinal examination of father involvement among young minority fathers. *Child and Adolescent Social Work Journal, 26*(2), 121-134. doi: 10.1007/s10560-008-0157-6

Robling, M., Bekkers, M. J., Bell, K., Butler, C. C., Cannings-John, R., Channon, S., … Torgerson, D. (2016). Effectiveness of a nurse-led intensive home-visitation programme for first-time teenage mothers (Building Blocks): A pragmatic randomised controlled trial. *The Lancet, 387*(10014), 146-155. doi: 10.1016/S0140-6736(15)00392-X

Rodrigo, M. J., Almeida, A., & Reichle, B. (2016). Evidence-based parent education programs: A European perspective. In J. J. Ponzetti, Jr. (Ed.), *Evidence-based parenting education: A global perspective* (pp. 85-104). New York: NY, Routledge.

Roemer, L., Orsillo, S. M., & Salters-Pedneault, K. (2008). Efficacy of an acceptance-based behavior therapy for generalized anxiety disorder: Evaluation in a randomized controlled trial. *Journal of Consulting and Clinical Psychology, 76*(6), 1083-1089. doi: 10.1037/a0012720

Roggman, L., Boyce, L., Cook, G., Christiansen, K., & Jones, D. (2004). Playing with daddy: Social toy play, early head start, and developmental outcomes. *Fathering, 2*(1), 83-108. doi:10.3149/fth.0201.83

Rondo, P. H. C., Ferreira, R. F., Nogueira, F., Ribeiro, M. C. N., Lobert, H., & Artes, R. (2003). Maternal psychological stress and distress as predictors of low birth weight, prematurity and intrauterine growth retardation. *European Journal of Clinical Nutrition, 57*, 266-272. doi: 10.1038/sj.ejcn.1601526

Rooks, J. P. (1999). The midwifery model of care. *Journal of Midwifery & Women's Health, 44*(4), 370-374. doi: 10.1016/s0091-2182(99)0060-9

Rosand, G. B., Slinning, K., Eberhard-Gran, M., Roysamb, E., & Tambs, K. (2011). Partner relationship satisfaction and maternal emotional distress in early pregnancy. *BMC Public Health, 11*, 161-173. doi: 10.1186/1471-2458-11-161

Rosenbach, M., O'Neil, S., Cook, B., Trebino, L., & Klein Walker, D. (2010). Characteristics, access, utilisation, satisfaction, and outcomes of Healthy Start participants in eight sites. *Maternal and Child Health Journal, 14*(5), 666-679. doi: 10.1007/s10995-009-0474-1

Roth, D. M., & Mbizvo, M. T. (2001). Promoting safe motherhood in the community: The case for strategies that include men. *African Journal of Reproductive Health, 5*(2), 10-21. doi: 10.2307/3583426

Roth, T. L., & Sweatt, J. D. (2011). Epigenetic mechanisms and environmental shaping of the brain during sensitive periods of development. *Journal of Child Psychology and Psychiatry, 52*(4), 398-408. doi: 10.1111/j.1469-764=10.2010.02282.x

Roulston, K. (2001). Data analysis and theorizing as ideology. *Qualitative Research, 1*, 279-302. doi: 10.1177/146879410100100302

Roussounis, S. H., Hubley, P. A., & Dear, P. R. (1993). Five-year follow-up of very low birthweight infants: Neurological and psychological outcome. *Child Care Health Development, 19*(1), 45-59. doi: 0.1111/j.1365-2214.1993.tb00712.x

Roy Malis, F. R., Meyer, T., & Gross, M. M. (2017). Effects of antenatal mindfulness-based childbirth and parenting programme on the postpartum experiences of mothers: A qualitative interview study. *BMC Pregnancy and Childbirth, 17*, 57-68. doi: 10.1186/s12884-017-1240-9

Rudestam, K. E., & Newton, R. R. (2007). *Surviving your dissertation: A comprehensive guide to content and process* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Rurak, D. W. (2001). Development and function of the placenta. In R. Harding & A. D. Bocking (Eds.), *Fetal growth and development* (pp. 284-296). Cambridge, England: Cambridge University Press.

Rutter, M. (2007). Gene-environment interdependence. *Developmental Science, 10*(1), 12-18. doi: 10.1111/j.1467-7687.2007.00557.x

Sable, M. R., Stockbauer, J., Schramm, W. F., & Land, G. H. (1990). Differentiating the barriers to adequate prenatal care in Missouri, 1987- 88. *Public Health Reports, 105*(6), 549-555. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/2124354

Sackman, H. (1975). *Delphi critique*. Boston, MA: Lexington.

Sahip, Y., & Turan, J. M. (2007). Education for expectant fathers in workplaces in Turkey. *Journal of Biosocial Science, 39*(6), 843-860. doi: 10.1017/S0021932007002088

Salam, M. Z., & Adams, R. D. (1966). New horizons in the neurology of childhood. *Perspectives in Biology and Medicine, 9*(2), 384-410. Retrieved from https://muse.jhu.edu/article/404548

Salihu, H., August, E., Mbah, A., Alio, A., Berry, E., & Aliyu, M. (2014). Impact of a federal healthy start program on feto-infant morbidity associated with absent fathers: A quasi-experimental study. *Maternal and Child Health Journal, 18*(9), 2054-2060. doi:10.1007/s10995-014-1451-x

Salmela-Aro, K., Aunola, K., Saisto, T., Halmesmaki, E., & Nurmi, J. (2006). Couples share similar changes in depressive symptoms and marital satisfaction anticipating the birth of a child. *Journal of Social and Personal Relationships, 23*(5), 781–803. doi: 10.1177/0265407506068263

Salvesen, K. A. (2007). Epidemiological prenatal ultrasound studies. *Progress in Biophysics and Molecular Biology, 93*(1-3), 295-300. doi: 10.1016/j.pbiomolbio.2006.07.013

Salzmann-Erikson, M., & Eriksson, H. (2013). Fathers sharing about early prenatal support in health care virtual discussions on an internet forum. *Health and Social Care in the Community, 21*(4), 381-390. doi: 10.1111/hsc.12028

Sandman, C. A., Davis, E. P., Buss, C., & Glynn, L. M. (2012). Exposure to prenatal psychobiological stress exerts programming influences on the mother and her fetus. *Neuroendocrinology, 95*(1), 7-21. doi: 10.1159/000327017

Sandman, C. A., & Glynn, L. M. (2009). Corticotrophin-releasing hormone (CRH) programs the fetal and maternal brain. *Future Neurology, 4*(3), 257-261. doi: 10.2217/fnl.09.8

Sardi, L., & Livingston, K. (2015). Parental decision making in male circumcision. The American *Journal of Maternal Child Nursing, 40*(2), 110-115. doi: 10.1097/NMC.0000000000000112

Sayer, L. C., Bianchi, S. M., & Robinson, J. P. (2004). Are parents investing less in children? Trends in mothers' and fathers' time with children. *American Journal of Sociology, 110*(1), 1-43. doi: 10.1086/386270

Schmidt, R. C. (1997). Managing Delphi surveys using nonparametric statistical techniques. *Decision Sciences, 28*(3), 763-774. doi: 10.1111/j.1540-5915.1997.tb01330.x

Scholl, T. O., Hediger, M. L., & Belsky, D. H. (1994). Prenatal care and maternal health during adolescent pregnancy: A review and meta-analysis. *Journal of Adolescent Health, 15*(6), 444-456. doi: 10.1016/1054-139X(94)90491-K

Schore, A. N. (1994). *Affect regulation and the origin of self: The neurobiology of emotional development.* Hillside, NJ: Lawrence Erlbaum.

Schore, A. N. (2000). Attachment and regulation of the right brain. *Attachment and Human Development, 2*(1), 23-47. doi: 10.1080/146167300361309

Schore, A. N. (2001). Effects of a secure attachment relationship on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal, 22*(1), 7-66. doi: 10.1002/1097-0355(200101/04)22:1<7::AID-IMHJ2>3.0.co;2-N

Schore, A. N. (2003). *Affect dysregulation and disorders of the self.* New York, NY: Norton.

Schroth, G. (2010). Prenatal bonding (BA): A method for encountering the unborn introduction and case study. *Journal of Prenatal and Perinatal Psychology and Health, 25*(1), 3-16. Retrieved from https://birthpsychology.com/journals/volume-25-issue-1/prenatal-bonding-ba-method-encountering-unborn-introduction-and-case-stud

Schultz, M. S., Cowan, C. P., & Cowan, P. A. (2006). Promoting healthy beginnings: A randomised controlled trial of a preventive intervention to preserve marital quality

during the transition to parenthood. *Journal of Consulting and Clinical Psychology, 74*(1), 20-31. doi: 10.1037/0022-006X.74.1.20. 20

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression*. New York, NY: Guilford Press.

Serpeloni, F., Radtke, K., de Assis, S. G., Henning, F., Natt, D., & Elbert, T. (2017). Grand maternal stress during pregnancy and DNA methylation of the third generation: An epigenome-wide association study. *Translational Psychiatry, 7*(8), e1202-1210. doi: 10.1038/tp.2017.153

Shah, H. A., & Kalaian, S. A. (2009). Which is the best parametric statistical method for analysing Delphi data? *Journal of Applied Statistical Methods, 8*(1), 226-232. doi: 10.22237/jmasm/1241137140

Shapiro, A., & Gottman, J. (2005). Effects on marriage of a psycho-communicative-education intervention with couples undergoing the transition to parenthood: Evaluation at 1-year post intervention. *Journal of Family Communication, 5*(1), 1-24. doi: 10.1207/s15327698jfc0501_1

Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology, 62*(3), 373-386. doi: 10.1002/jclp.20237

Shefer, D., & Strouma, J. (1982). Street lighting projects selection: A rational decision-making approach. *Socio-Economic Planning Services, 16*(6), 245-259. doi: 10.1016/0038-0121(82)90009-X

Shefner-Rogers, C. L., & Sood, S. (2004). Involving husbands in safe motherhood: Effects of the SUAMI SIAGA campaign in Indonesia. *Journal of Health Communication, 9*(3), 233-258. doi: 10.1080/10810730490447075

Sherriff, N., & Hall, V. (2011). Engaging and supporting fathers to promote breastfeeding: A new role for Health Visitors? *Scandinavian Journal Caring Sciences, 25*(3), 467-475. doi: 10.1111/j.1471-6712.2010.00850.x

Shi, Z., & MacBeth, A. (2017). The effectiveness of mindfulness-based interventions on maternal perinatal mental health outcomes: A systematic review. *Mindfulness, 8*(4), 823-847. doi: 10.1007/s12671-016-0673-y

Shonkoff, J. P. (2011). Protecting brains, not simply stimulating minds. *Science, 333*, 982-983. doi: 0.1126/science.1206014

Shonkoff, J. P., & Fisher, P. A. (2013). Rethinking evidence-based practice and two-generation programs to create the future of early childhood policy. *Development and Psychopathology, 25*(402), 1635-1653. doi: 10.1017/S0954579413000813

Shorey, S., Dennis, C. L., Bridge, S., Chong, Y.S., Holroyd, E., & He, H.G. (2017). First-time fathers' postnatal experiences and support needs: A descriptive qualitative study. *Journal of Advanced Nursing, 73*(12), 2987-2996. doi: 10.1111/jan.13349

Shribram, S., & Billingham, K. (2008). *The Child Health Promotion Program: Pregnancy and the first five years of life*. London, England: Department of Health. Retrieved from http://www.fatherhoodinstitute.org/uploads/publications/399.pdf

Shuttleworth, M., & Wilson, L. T. (2008). *Research hypothesis*. Retrieved from Explorable.com website: https://explorable.com/research-hypothesis

Sidebottom, A. C., Hellerstedt, W. L., Harrison, P. A., & Jones-Webb, R. J. (2017). Prenatal care: Associations with prenatal depressive symptoms and social support in low-income urban women. *Archives of Women's Mental Health, 20*(5), 633-644. doi: 10.1007/s00737-017-0730-0

Siegel, D. J. (1999). *The developing mind: How relationships and the brain interact to shape who we are* (1st ed.). New York, NY: Guilford Press.

Siegel, D. J. (2007). *The mindful brain: Reflection and attunement in the cultivation of wellbeing*. New York, NY: W. W. Norton.

Siegel, D. J. (2010a). *The science of mindfulness*. Retrieved from Mindful.org website: http://www.mindful.org/the-science-of-mindfulness/

Siegel, D. J. (2010b). *Mindsight: The new science of personal transformation.* New York, NY: Bantam Books.

Siegel, D. J. (2011). *Mindsight*. New York, NY: Bantam Books.

Siegel, D. J. (2012). *Pocket guide to interpersonal neurobiology*. New York, NY: Norton.

Simbar, M., Nahidi, F., Tehran, F. R., & Ramezankhani, A. (2010). Fathers' educational needs for perinatal care in urban Iran: A qualitative approach. *Journal of Biosocial Science, 42*(5), 633-641. doi: 10.1017/s00219320010000167

Sinclair, M. (2013). Looking through the research lens at challenges facing midwives delivering evidence-informed antenatal education. *Evidence Based Midwifery*, *11*(4), 111. Retrieved from https://www.rcm.org.uk/learning-and-career/learning-and-research/ebm-articles/editorial-looking-through-the-research-lens

Singh, N. N., Lancioni, G. E., Winton, A. S. W., Singh, J., Singh, A. N., Adkins, A. D., & Wahler, R. G. (2010). Training in mindful: Caregiving transfers to parent-child interactions. *Journal of Child Family Studies, 19*, 167-174. doi: 10.1007/s10826-009-9267-9

Smart, C., Strathdee, G., Watson, S., Murgatroyd, C., & McAllister-Williams, R. H. (2015). Early life trauma, depression and the glucocorticoid receptor gene: An epigenetic perspective. *Psychological Medicine, 45*(16), 3393-3410. doi: 10.1017/s0033291715001555

Sokolowski, M., & Wahlsten, D. (2001). Gene-environment interaction. In H. Chin & S. O. Moldin (Eds.), *Methods in genomic neuroscience*. Boca Raton, FL: CRC Press.

Somers-Smith, M. J. (1999). A place for the partner? Expectations and experiences of support during childbirth. *Midwifery, 15*(2), 101-108. doi:10.1016/S0266-6138(99)90006-2

Sood, R., Zehnder, J. L., Druzin, M. L., & Brown, P. O. (2006). Gene expression patterns in human placenta. *Proceedings of the National Academy of Sciences of the United States of America, 103*(14), 5478-5483. doi: 10.1073/pnas.0508035103

St-Arneault, K., de Montigny, F., & Villeneuve, R. (2014). Fathers' integration in Quebec's perinatal and early childhood public policies. *Canadian Journal of Public Health, 105*(1), e37-e39. doi: 10.17269/cjph.105.4109

Stark, C. R., Orleans, M., Haverkamp, A. D., & Murphy, J. (1984). Short and long-term risks after exposure to diagnostic ultrasound in-utero. *Obstetrics and Gynaecology, 63*(2), 194-200. Retrieved from http://journals.lww.com/greenjournal/abstract/1984/02000/short__and_long_term_risks_after_exposure_to.12.aspx

Stark, M. J., Wright, M. R., & Clifton, V. L. (2009). Sex-specific alterations in placental 11ß-hyroxysteroid dehydrogenase 2 activity and early postnatal clinical course following antenatal betamethasone. *The American Journal of Physiology-Regulatory Integrative and Comparative Physiology, 297*(2), R510-R514. doi: 10.1152/ajpregu.00175.2009

Stathakarou, N., Zary, N., & Konowicz, A. A. (2015). Evaluation of three educational use cases for using virtual patients in massive open online courses (MOOCs): A Delphi study. *Bio-Algorithms and Med-Systems, 11*(2), 113-119. doi: 10.1515/bams-2015-0007)

Stone Fish, L. (1987). The theory and practice of structural and strategic family therapies: A Delphi study. *Journal of Marital and Family Therapy, 13*(2), 113-125. doi: 10.1111/j.1752-0606.1987.tb00690.x

Stone Fish, L., & Busby, D. M. (1996). The Delphi method. In D. M. Sprenkle & S. M. Moon (Eds.), *Research methods in family therapy* (pp. 469-782). New York, NY: Guildford.

Stone Fish, L., & Osborne, J. (1992). Therapists' view of family life: A Delphi study. *Family Relations, 41*(4), 40-416. doi: 10.2307/585583

Sumsion, T. (1998). The Delphi technique: An adaptive research tool. *British Journal of Occupational Therapy, 61*(4), 153-156. doi: 10.1177/030802269806100403

Symer, D. E., & Bender, J. (2001). Hip-hopping out of control. *Nature, 411*, 146-149. doi: 10.1038/35075692

Tanner, D., & Tanner, L. (1975). *Curriculum development: Theory into practice*. New York, NY: Macmillan.

Taylor, C., Mills, A., Schmied, V., Dahlen, H., Shuiringa, W., & Hudson, M. E. (2012). What works to engage young parents into services? Findings from an appreciative inquiry workshop. *Contemporary Nurse, 42*(2), 258-271. doi: 10.5172/conu.2012.42.2.258

Tesch, R. (1990). *Qualitative research: Analysis types and software tools*. Hove, England: Psychology Press.

Tester, S. (1992). *The family therapist's use of self: A Delphi study* (Unpublished doctoral thesis), Florida State University, USA.

Thomas, J., Schavaneveldt, J. D., & Young, M. H. (1993). Programs in family life education: Development, implementation, and evaluation. In M. E. Arcus, J. D. Schvaneveldt, & J. J. Moss (Eds.), *Handbook of family life education: Foundations of family life education* (Vol. 1) (pp. 106-130). Newbury Park, CA: Sage.

Thomas, J. C., Letourneau, N., Campbell, T. S., Tomfohr-Madsen, L., & Giesbrecht, G. G. (2017). Developmental origins of infant emotion regulation: Mediation by

temperamental negativity and moderation by maternal sensitivity. *Developmental Psychology, 53*(4), 611-628. doi: 10.1037/dev0000279

Thompson, E. (2001). Empathy and consciousness. In E. Thompson (Ed.), *Between ourselves: Second person issues in the study of consciousness* (pp. 1-32). Thorverton, England: Imprint Academic.

Titaley, C. R., Dibley, M. J., & Roberts, C. L. (2010). Factors associated with underutilization of antenatal care services in Indonesia: Results of Indonesia demographic and health survey 2002/2003 and 2007. *BMC Public Health, 10*(1), 485-495. doi:10.1186/1471-2458-10-485

Tohotoa, J., Maycock, B., Hauck, Y. L., Dhaliwal, S., Howat, P., Burns, S., & Binns, C. W. (2012). Can father inclusive practice reduce paternal postnatal anxiety? A repeated measures cohort study using the hospital anxiety and depression scale. *BMC Pregnancy and Childbirth, 12*(1), 75-83. doi:10.1186/1471-2393-12-75

Tremblay, K. A., & Soliday, E. (2012). Effect of planning, wantedness, and attachment on prenatal anxiety. *Journal of Prenatal and Perinatal Psychology and Health, 27*(2), 97-119. Retrieved from https://birthpsychology.com/journals/effect-planning-wantedness-and-attachment-prenatal-anxiety

Trillingsgaard, T., Baucom, K. J. W., Heyman, R. E., & Elklit, A. (2012). Relationship interventions during the transition to parenthood: Issues of timing and efficacy. *Family Relations, 61*(5), 770-783. doi: 10.1111/j.1741-3729.2012.00730.x

Turan, J. M., & Say, L. (2003). Community-based antenatal education in Istanbul, Turkey: Effects on health behaviours. *Health Policy Planning, 18*(4), 391-398. doi: 10.1093/heap01/czg047

Turner, J. R. G., & Turner, T. G. N. (2005). Prenatal parenting. *Journal of Prenatal and Perinatal Psychology and Health, 19*(4), 353-356. Retrieved from https://birthpsychology.com/content/prenatal-parenting

Ulschak, F. L. (1983). *Human resource development: The theory and practice of needs assessment*. Reston, VA: Reston Publishing.

U.S. Department of Health and Human Services. (2017). *Teen pregnancy prevention evidence review.* Atlanta, Georgia: Author. Retrieved from https://tppevidencereview.aspe.hhs.gov/EvidencePrograms.aspx

van Batenburg-Eddes, T., de Groot, L., Huizink, A. C., Steegers, E. A. P., Hofman, A., Jaddoe. V. W. V., … Tiemeier, H. (2009). Maternal symptoms of anxiety during pregnancy affect infant neuromotor development: The generation R study. *Developmental Neuropsychology*, *34*(4), 476-493. doi: 10.1080/87565640902964508

van Bussel, J. H., Spitz, B., & Demyttenaere, K. (2010). Three self-report questionnaires of the early mother-to-infant bond: Reliability and validity of the Dutch version of the MPAS, PBQ and MIBS. *Archives of Women's Mental Health*, *13*(5), 373-384. doi: 10.1007/s00737-009-0140-z

Van de Carr, R. F., & Lehrer, M. (1998). Prenatal university: Commitment to fetal-family bonding and the strengthening of the family unit as an educational institution. *Journal of Prenatal and Perinatal Psychology and Health*, *3*(2), 87-102. Retrieved from https://birthpsychology.com/journals/volume-12-issue-34/prenatal-university-commitment-fetal-family-bonding-and-strengthening-fa

Van den Bergh, B.R., Mulder, E.J., Mennes, M., & Glover, V. (2005). Antenatal maternal anxiety and stress and the neurobehavioral development of the fetus and child: Links and possible mechanisms. *Neuroscience and Biobehavioral Review, 29*(2), 237-258. doi: 10.1016/j.neubiorev.2004.10.007

Vanska, M., Punamaki, R. L., Tolvanen, A., Lindblom, J., Flykt, M., Unkila-Kallio, L., … Tiitinen, A. (2017). Paternal mental health trajectory classes and early fathering experiences: Prospective study on a normative and formerly infertile sample. *International Journal of Behavioural Development, 41*(5), 570-580. doi: 10.1177/0165025416654301

Vazquez-Ramos, R., Leahy, M., & Hernandez, N. E. (2007). The Delphi method in rehabilitation counselling research. *Rehabilitation Counselling Bulletin, 50*(2), 111-18. doi: 10.1177/00343552070500020101

Verny, T. R. (1984). Prenatal psychology: Implications for the practice of medicine. *Canadian Family Physician, 30*, 2115-2118. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2154335/

Verny, T. R. (2012). The pre- and perinatal origins of childhood and adult diseases and personality disorders. *Journal of Prenatal and Perinatal Psychology and Health, 26*(3), 137-163. Retrieved from https://birthpsychology.com/journals/volume-26-issue-3/pre-perinatal-origins-childhood-and-adult-diseases-and-personality-disord

Verny, T. R., & Kelly, J. (1981). *The secret life of the unborn child*. New York, NY: Summit Books.

Verny, T., & Weintraub, P. (1991). *Nurturing the unborn child: A nine-month program for soothing, stimulating, and communicating with your baby*. New York, NY: Delacorte Press.

Verny, T. R., & Weintraub, P. (2002a). *Pre-parenting: Nurturing your child from conception*. New York, NY: Simon & Schuster.

Verny, T. R., & Weintraub, P. (2002b). *Tomorrow's baby*. New York, NY: Simon & Schuster.

Veru, F., Dancause, K., Laplante, D., Luheshi, G. N., & King, S. (2014). Prenatal maternal stress exposure and immune function in the offspring, *Stress, 17*(2), 133-148. doi: 10.3109/10253890.2013.876404

Vieten, C., & Astin, J. (2008). Effects of a mindfulness-based intervention during pregnancy on prenatal stress and mood: Results of a pilot study. *Archives of Women's Mental Health, 11*, 67-74. doi: 10/1007/s00737-008-0214-3

Volling, (2012). Family transitions following the birth of a sibling: An empirical review of changes in the firstborn's adjustment. *Psychology Bulletin, 138*(3), 497-528. doi: 10.1037/a0026921

Wachs, K., & Cordova, J. V. (2007). Mindful relating: Exploring mindfulness and emotion repertoires in intimate relationships. *Journal of Marital and Family Therapy, 33*(4), 464-481. doi: 10.1111/j.1752-0606.2007.00032.x

Wadhwa, P. D., Sandman, C. A., & Garite, T. J. (2001). The neurobiology of stress in human pregnancy: Implications for prematurity and development of the fetal central nervous system. *Progress in Brain Research, 133*, 131-142. doi: 10.1016/S0079-6123(01)33010-8

Wallin, D. J. (2007). *Attachment in psychotherapy*. New York, NY: Guildford Press.

Walsh, R., & Shapiro, S. L. (2006). The meeting of meditative disciplines and western psychology: A mutually enriching dialogue. *American Psychologist, 61*(3), 227-239. doi: 10.1037/0003-066X.61.3.227

Walsh, T. B., Tolman, R. M., Davis, R. N., Palladino, C. L., Romero, V. C., & Singh, V. (2014). Moving up the "magic moment": Fathers' experience of prenatal ultrasound. *Fathering, 12*(1), 18-37. doi: 10.3149/fth.1201.18

Wan, E. Y., Moyer, C. A., Harlow, S. D., Fan, J. Y., & Yang, H. (2009). Postpartum depression and traditional postpartum care in China: Role of zuoyuezi. *International Journal of Gynecology & Obstetrics, 104,* 209-213. doi: 10.1016/j.ijgo.2008.10.016

Wang, Y., Tanbo, T., Abyholm, T., & Henriksen, T. (2011). The impact of advanced maternal age and parity on obstetric and perinatal outcomes in singleton gestations. *Archives of Gynecology and Obstetrics, 284*(1), 31–37. doi: 10.1007/s00404-010-1587-x

Ward, S. A. (2004). Suicide and pre-and perinatal psychology. *Journal of Prenatal and Perinatal Psychology and Health, 19*(2), 89-105. Retrieved from https://birthpsychology.com/journals/volume-19-issue-2/suicide-and-pre-and-perinatal-psychotherapy

Ward, L., Stebbings, S., Sherman, K. J., Cherkin, D., & Baxter, G. D. (2014). Establishing key components of yoga interventions for musculoskeletal conditions: A Delphi survey. *BMC Complementary and Alternative Medicine,* 14, 196-208. doi: 10.1186/1472-6882-14-196

Warner, L. A. (2014). *Using the Delphi technique to achieve consensus: A tool for guiding extension programs*. Florida, USA: Institute of Food and Agricultural Services.

Weber, R. P. (1990). *Basic content analysis*. Thousand Oaks, CA: Sage.

Weinhold, B. (2012). A steep learning curve: Decoding epigenetic influences on behaviour and mental health. *Environmental Health Perspectives, 120*(10), 397-401. doi: 10.1289/ehp.120-a396

Weinstein, A. D. (2016). *Prenatal development and parents' lived experiences*. New York, NY: Norton.

Weinstock, M. (2008). The long-term behavioural consequences of prenatal stress. *Neuroscience and Behavioural Reviews, 32*(6), 1073-1086. doi: 10.1016/j.neubiorev.2008.03.002

Wen, D. J., Poh, J. S., Ni, S. N., Chong, Y. S., Chen, H., Kwek, K., … Qiu, A. (2017). Influences of prenatal and postnatal maternal depression on amygdala volume and microstructure in young children. *Translational Psychiatry, 7*(4), e1103-e1111. doi: 10.1038/tp.2017.74

Wenzel, A. (2011). *Anxiety in childbearing women: Diagnosis and treatment*. Washington DC, USA: American Psychological Association. doi:10.1037/12302-000

White, L. K., & Booth, A. (1985). The transition to parenthood and marital quality. *Journal of Family Issues,* (6), 435-450. doi: 10.1177/019251385006004003

Williams, P., & Webb, C. (1994). The Delphi technique: A methodological discussion. *Journal of Advanced Nursing, 19*(1), 180-186. doi: 10.1111/j.1365-2648.1994.tb01066.x

Wilson, L., & Wilson Peters, T. (2013). *The attachment pregnancy: The ultimate guide to bonding with your baby.* Avon, MA: Adams Media.

Winnicott, D. W. (1960). The theory of the parent-infant relationship. *International Journal of Psychoanalysis, 41*, 585-595. Retrieved from http://icpla.edu/wp-content/uploads/2012/10/Winnicott-D.-The-Theory-of-the-Parent-Infant-Relationship-IJPA-Vol.-41-pps.-585-595.pdf

Winnicott, D. W. (2002). *Winnicott on the child*. Cambridge, MA: Perseus Publishing.

Wittokowski, A. A., Wieck, A. A., & Mann, S. S. (2007). An evaluation of two bonding questionnaires: A comparison of the mother-to-infant bonding scale with the postpartum bonding questionnaire in a sample of primiparous mothers. *Archives of Women's Mental Health, 10*(4), 171-175. doi: 10.1007/s00737-007-019I-y

Wolynn, M. (2016). *It didn't start with you: How inherited family trauma shapes who we are and how to end the cycle*. New York, NY: Viking/Penguin.

World Health Organization (WHO). (2007). *Fatherhood and health outcomes in Europe.* Copenhagen, Denmark: WHO.

Yehuda, R., Halligan, S. L., & Bierer, L. M. (2001). Relationship of prenatal trauma exposure and PTSD to PTSD, depressive and anxiety disorders in offspring. *Journal of Psychiatric Research, 35*(5), 261-270. doi: 10.1016/S0022-3956(01)00032-2

Young, R. (2013). The importance of bonding. *International Journal of Childbirth Education, 28*(3), 11-16. Retrieved from http://icea.org/about/icea-journal/

Young, W. H., & Hogben, D. (1978). An experimental study of the Delphi technique. *Education Research Perspectives, 5,* 57-62. Retrieved from http://www.erpjournal.net/?page_id=429

Yu-Chih, D., Yu-Ching, L., & Sanchez, C. (2013). Online learning style preferences: An analysis on Taiwanese and USA learners. *Turkish Online Journal of Educational Technology, 12*(4), 140-152. Retrieved from http://www.tojet.net/articles/v12i4/12416.pdf

Zambrana, R. E., Dunkel Schetter, C., & Scrimshaw, S. (1991). Factors which influence use of prenatal care in low-income racial-ethnic women in Los Angeles County. *Journal of Community Health, 16*(5), 283–295. doi: 10.1007/BF01320336

Zanoni L., Warburton W., Bussey K., & McMaugh A. (2013). Fathers as "core business" in child welfare practice and research: An interdisciplinary review. *Children and Youth Services Review, 357*, 1055–70. doi: 10.1016/j.childyouth.2013.04.018

Zeichner, K. M. (1983). Alternative paradigms of teacher education. *Journal of Teacher Education, 34*(3), 3-9. doi: 10.1177/002248718303400302

Zeskind, P. S., & Stephens, L. E. (2004). Maternal selective serotonin reuptake inhibitor use during pregnancy and newborn neurobehavior. *Pediatrics, 113*(2), 368-375. doi: 10.1542/peds.113.2.368

Zhou, N. (2013). Improving childbirth practice for adult parents-to-be. *International Journal of Childbirth Education, 28*(2), 25-29. Retrieved from http://www.magcloud.com/browse/issue/548900

Ziglio, E. (1996). The Delphi method and its contribution to decision making. In M. Adler & E. Ziglio (Eds.), *Gazing into the oracle: The Delphi method and application to social policy and public health* (pp. 3-26). London: Jessica Kingsley.

Zozus, M. N., Pieper, C., Johnson, C. M., Johnson, T. R., Franklin, A., Smith, J., & Zhang, J. (2015). Factors affecting accuracy of data abstracted from medical records. *PLoS One, 10*(10), 1-20. doi: 10.1371/journal.pone.0138649

Zucchi, F. C., Yao, Y., Ward, I. D., Ilnytskyy, Y., Olson, D. M., Benzies, K., … Metz, G. A. S. (2013). Maternal stress induces epigenetic signatures of psychiatric and neurological diseases in the offspring. *PLoS One, 8*(2), e56967-e56976. doi: 10.1371/journal.pone.0056967

Zvara, B. J., Schoppe-Sullivan, S. J., & Kamp Dush, C. (2013). Fathers' involvement in child health care: Associations with prenatal involvement, parents' beliefs, and maternal gatekeeping. *Family Relations, 62*(4), 649-661. doi: 10.1111/fare.12023

Zwelling, E. S. (1994). It's family time. *The Journal of Perinatal Education, 3*(2), 53-54. Retrieved from http://www.springerpub.com/the-journal-of-perinatal-education.html

# Appendix A

## BUHREC Approval Letter for Studies 1 and 2—Application ID 15474

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23 December 2015

Peta Stapleton and Christine McKee
Faculty of Society and Design
Bond University

Dear Peta and Christine

**Application ID:** **15474**
**Project Title:** **Consciously Welcoming a Preborn: the impact of parental self-regulation of the ANS, intentionality and heart synchrony on cortisol levels and post-partum bonding**

I am pleased to confirm that your project was reviewed by Bond University Human Research Ethics Committee and you have been granted approval to proceed.

The Committee requires, as a condition of approval, that all investigations be carried out in accordance with the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research* (2007). Approval is subject to conduct of the research in accordance with the requirements set out in the National Statement.

Approval is given subject to the protocol of the study being undertaken as described in your application, and approved amendments. As you may be aware the Ethics Committee is required to annually report on the progress of research it has approved. We would greatly appreciate if you could respond promptly and fully to the request for information on this project which will be distributed in March/April each year.

Under the terms of the National statement BUHREC has a role to monitor approved research projects and if necessary may withdraw approval. Conduct of unapproved research or deviation from the approved protocol may constitute academic misconduct and will be investigated in accordance with Section B of the *Australian Code for the Responsible Conduct of Research* (2007). Please refer to the Research Ethics website for more detail on Research Integrity and Bond University processes for dealing with instances of research misconduct.

You are reminded that the Principal Investigator must immediately report anything that might warrant review of ethical approval of the project. Should you have any queries or experience any problems, please contact us promptly.

We wish you well with your research project.

Yours sincerely

**Dr Mark Bahr**
**Chair Bond University Human Research Ethics Committee**

## Appendix B

### Psychdata Explanatory Statement and Online Questionnaire for Studies 1 and 2

My name is Christine McKee and I am currently completing a PhD at Bond University, Australia, under the supervision of Dr Peta Stapleton.

I am conducting a research investigation into welcoming a baby consciously into life from conception through to post birth. I am specifically interested in exploring how this may be impacted when mums and dads are resourced, regulated, focussed, and intentional in their behaviours individually, with each other, and with baby during pregnancy and post birth.

The goal is to maximise attachment between mum and dad first, to then influence bonding with the prenate during gestation, and post birth bonding between mum, dad and baby.

As part of this study, I invite you to complete the following online survey if:

1. You or your partner are currently pregnant or you already have one or more children, and
2. English is your first language or you fluently read and write English.

Whilst there are 40 questions in total (including demographic questions), you will be guided to answer only those that relate to your circumstances.

It is anticipated to take no more than 30 minutes to complete. *Please note that the survey needs to be completed in one session.* You will not be able to come back to your survey at a later date. This ensures your anonymity.

Participation in this study is completely anonymous and voluntary, and you may withdraw at any time without risking any negative consequences. If you choose to withdraw your participation in this study, the information you have provided will be immediately destroyed.

As a token of thanks for supporting this study and completing the questionnaire, you will receive a $20 gift voucher and an e-book on *Conscious Parenting*.

All the data collected in this study will be treated with complete confidentiality and will not be made accessible to any person outside of the two researchers working on this project (listed at the bottom of this page). The information obtained from you will be dealt with in a manner that ensures you remain anonymous. Data will be stored in a secured location at Bond University for a period of five years accordance with the guidelines set out by the Bond University Human Research Ethics Committee.

It is anticipated that the data collected during this study will assist us in understanding what would be of benefit to parents-to-be in terms of: social support, coping skills, staying connected in partner relationships during the transition to parenthood, the ability to be regulated and in a positive and calm mindset, and the ability for expecting parents to be fully connected with babies from conception onwards. Your participation in this study will enhance work towards developing interventions and tools to assist with regulation, coping, bonding in the couples dyad, and prenatal bonding period.

If you experience distress from participation in this research, please contact:

**Australia**: Parents Helplines and Hotlines available by State. Please visit: www.raisingchildren.net.au/articles/hotlines.html

**USA**: www.nationalparenthelpline.org or Phone Toll Free 1-855-427-2736

**UK/Europe**: Parenting Helplines and Advice on Parenting – Phone Toll Free 0800-800-5678 or visit www.itv.com/thismorning/parenting_helplines

**Other World Regions**: www.thefamilyconservancy.org/resources/parenting-resources-and-links or www.centerforparentingeducation.ord/library-of-articles

Should you have any complaints concerning the manner in which this research is being conducted please make contact with:

Bond University Human Research Ethics Committee, Bond University Office of Research Services. Bond University, Gold Coast, 4229, Australia
Tel: +61 7 5595 4194 Fax: +61 7 5595 1120
email: ethics@bond.edu.au

We thank you for taking time to assist us with this research.

Yours sincerely

Christine McKee
PhD Candidate

Dr Peta Stapleton
Chief Investigator

**Consent**

1. If you feel comfortable to complete the online survey based on the information provided above, please indicate your consent by typing '*Y*' in the box below.

**Demographic Questions**

2. What is your age?

3. What is your gender?

   **Female**
   **Male**

4. What is your Nationality?

5. What country do you live in?

6. What is your religious affiliation?

7. What is your marital status?

**Living with partner**
**Married**
**Divorced**
**Separated**
**Other: please specify**

8. Are you or your partner currently pregnant?

**Yes**
**No**

**Please only answer the following two questions if you have birthed one or more children or you are the father of one or more children. If not please proceed to question 11.**

9. How many children do you have?

10. What are the ages of each of your children?

11. How long have you been in a partner relationship with the mother/father of your children?

**Less than one year**
**1-3 years**
**3-5 years**
**5-7 years**
**7-10 years**
**I am not in relationship with the mother/father of my child[ren]**
**Other: please specify**

12. What is the highest level of education you have completed?

**High School or equivalent**
**Vocational/technical College**
**Bachelor's degree**
**Master's degree**
**Doctoral degree**
**Other: please specify**

13. How would you describe your current employment situation?

**Full-time employment**
**Part-time employment**
**Casual employment**
**Self-employed**
**Unemployed**
**Retired**

14. Which statement best describes your opinion of your pregnancy:

**The pregnancy is/was planned and wanted**

**The pregnancy is/was unplanned (happened earlier than you intended) and wanted**
**The pregnancy is/was unwanted (did not intend to have children at all)**
**I am/was ambivalent (unsure/uncertain/confused) about the pregnancy**

15. From your perspective, please describe how your partner responded/reacted when they learned about the pregnancy. +

16. Are you currently enrolled in/attending a pre- and perinatal parenting program?

**Yes**
**No**

**Please answer the following four questions based on the pre- and perinatal classes you attended or are currently attending.**

17. Please specify the program/s. +

18. Please identify the topics in the program/s that are/were addressed well, relevant, and useful to you as a parent. +

19. Please identify the topics in the program that are/were not addressed well, relevant and useful to you as a parent. +

20. Please identify the topics in the program that would have been relevant and useful and you as a parent but were not included. +

**The following five questions relate to SELF-REGULATION of your nervous system.**

21. When you feel stressed, anxious, fearful, or worried what do you do to cope? Please be specific. +

22. What thoughts do you notice you have when you are stressed, anxious, tense, worried, or fearful about being a parent? +

23. What thoughts do you notice you have when you are calm, relaxed, happy, peaceful, or confident about being a parent? +

24. What people, things, and practices do you have in your life that is supportive? +

25. What do you believe you need to feel more supported? +

**The following three questions relate to INTENTIONALITY of thoughts, emotions, actions towards self, partner, and baby.**

26. During the time of pregnancy[s] how often do/did you talk to your baby? What types of things do/did you say? If this varied across pregnancies, please be specific. ++

27. What is your belief about if your baby is/was influenced by your thoughts, emotions, beliefs, and moods during the time of pregnancy? Please be specific. ++

28. What is your belief about your baby/s being impacted by the quality of your relationship with your partner during the time of pregnancy? Please be specific. ++

**The following five questions relate to CO-REGULATION with your partner.**

29. What does/did your partner specifically do to support you during the time/s of pregnancy? +

30. During the time/s of pregnancy, if you and your partner are having difficult conversations (where there are emotions such as anger, frustration, sadness or hurt) do/did you talk to your baby about that? If yes, what types of things do/did you say? ++

31. In what ways do you believe you are/were supportive of your partner during the time/s of pregnancy? Please be specific. +

32. What do/did you and your partner do to stay connected to each other during the time/s of pregnancy? Please be specific. +

33. How would you like/have liked your partner to be more involved during the time/s of pregnancy? +

**Please only answer the following two questions if your children have been born.**

34. Now that your children have been born, what do you and your partner do for each other that is supportive? +

35. What do you and your partner do to stay connected now you have children? Please be specific. +

**The following five questions relate to SUPPORT.**

36. During the time of pregnancy what are/were the hardest experiences to cope with/manage? Why? +

37. If you have birthed your baby/s, what have been/were the hardest experiences to cope with/manage? Why? +

38. Identify the support network you have/had available to you during pregnancy and in the first three months that followed (if you have multiple children, please identify all that apply across the different pregnancies):

    **My partner**
    **At least one friend**
    **Family members**
    **Work colleague/s**
    **Social connections**
    **Pet**
    **A feeling of being connected in nature**

**Birthing team (e.g., midwife, doula, OB/GYN)**
**Other: please specify**

39. If you and your partner were to become pregnant again, would you interact with your baby differently? If yes, how specifically? ++

40. If you and your partner were to become pregnant again, would you interact with your partner differently? If yes, how specifically? +

## Appendix C

### Recruitment Advertisement for Mothers and Fathers: Studies 1 and 2

Bond University: Mums and dads needed to complete a short online survey on bonding and attachment between mum, dad and baby during pregnancy and beyond.

Are you a mum or dad or currently expecting a baby?

If yes, I would love and appreciate your help with my PhD. My name is Christine McKee and I am a pre- and perinatal specialist and am completing my PhD through Bond University, under the supervision of Dr Peta Stapleton.

The first study of my PhD is focussing on exploring if and how mums and dads are resourced, regulated, focussed and intentional in their behaviours individually, with each other, and with baby during pregnancy and after birth.

The goal is to learn more about what may be needed by parents during the time of pregnancy and post birth that can be included in the design, development, and delivery of future pre- and perinatal parenting programs.

Your participation would require completing a short anonymous, confidential, and voluntary online survey. Your responses will enhance work towards developing interventions and tools to assist first-time parents being able to consciously bond with each other and their baby, during pregnancy and post birth.

To be a participant you would need to be either:

1. Currently pregnant/or the partner of a woman who is pregnant for the first-time, or
2. You are the first-time mum or dad of a child who is a *minimum* of three months old (older is okay).

You can fill the survey out in the comfort of your own home and it would take no more than 20 minutes. Full human ethics clearance has been granted by Bond University Human Research Ethics Committee (BUHREC Application ID: 15474).

If you can help, please click on the link below that will take you to the online questionnaire:
[*Psychdata link*]

Your help is hugely appreciated!

If you have any questions, please feel free to contact me via email at:
christine.mckee@student.bond.edu.au.

Thank you

Christine McKee (Student Researcher)
Dr Peta Stapleton (Chief Investigator)

## Appendix D

## BUHREC Approval Letter for Study 3—Application ID 15839

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

HUMAN RESEARCH ETHICS COMMITTEE
Bond University
Gold Coast, Queensland 4229
Australia
Ph: +61 7 5595 4194
Fax: +61 7 5595 1528
(from overseas)
Email: ethics@bond.edu.au

19 December 2016

Peta Stapleton
Faculty of Society and Design
Bond University

Dear Peta

| | |
|---|---|
| **Application ID:** | **15839** |
| **Project Title:** | **What factors are important for inclusion in a prenatal parenting intervention to maximise pre and post-birth bonding between mothers, fathers and baby: a consumers perspective Delphi study** |
| **Researchers:** | **Peta Stapleton, Christine McKee** |

I am pleased to confirm that your project was reviewed by Bond University Human Research Ethics Committee and you have been granted approval to proceed.

The Committee requires, as a condition of approval, that all investigations be carried out in accordance with the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research* (2007). Approval is subject to conduct of the research in accordance with the requirements set out in the National Statement.

Approval is given subject to the protocol of the study being undertaken as described in your application, and approved amendments. As you may be aware the Ethics Committee is required to annually report on the progress of research it has approved. We would greatly appreciate if you could respond promptly and fully to the request for information on this project which will be distributed in March/April each year.

Under the terms of the National statement BUHREC has a role to monitor approved research projects and if necessary may withdraw approval. Conduct of unapproved research or deviation from the approved protocol may constitute academic misconduct and will be investigated in accordance with Section B of the *Australian Code for the Responsible Conduct of Research* (2007). Please refer to the Research Ethics website for more detail on Research Integrity and Bond University processes for dealing with instances of research misconduct.

You are reminded that the Principal Investigator must immediately report anything that might warrant review of ethical approval of the project. Should you have any queries or experience any problems, please contact us promptly.

We wish you well with your research project.

Yours sincerely

**Dr Mark Bahr**
**Chair Bond University Human Research Ethics Committee**

www.bond.edu.au

## Appendix E

### Parent Delphi Study: Recruitment Advertisement (Study 3)
### Research Invitation

Pre- and Perinatal Education for the 21st Century: An expert consensus study

Researchers from Bond University are seeking both mums and dads who at least one child, and who have attended (and completed) a prenatal course or classes that were facilitated by a birth professional, to participate in a Delphi Consensus Study.

The main aim of this study is to establish consensus around what factors are important for inclusion in a pre- and perinatal parenting program, to maximise pre and post birth bonding between mums and dads, as well as between mums, dads, and baby.

If you are interested in taking part, please contact the student researcher, Christine McKee for further information at christine.mckee@student.bond.edu.au.

Additionally, if you know anyone who may meet the criteria for inclusion and may be interested in participating, please feel free to share this invitation to participate—your support is greatly appreciated.

## Appendix F

### Parent Delphi Study: Email Sent to Responders to the Recruitment Invitation (Study 3)

Hi [*responder name*]

Thank you for your interest in the Delphi expert consensus study for my PhD. Your participation is greatly appreciated. Below is a summary of the study and what is involved, along with the link to start the first online questionnaire.

The main aims of this study are to establish consensus around:

1. What factors impact the growth and development of a baby in-utero and post birth; and

2. What factors are important for inclusion in modern day pre- and perinatal parenting programs to maximise pre and post birth bonding between mums and dads, as well as between mums, dads, and baby.

Your participation in the study would involve responding to three rounds of an online questionnaire (there is approximately six weeks between each round). The questionnaire in rounds 1 and 2 will take between 30 and 40 minutes, with round 3 taking up to 20 minutes.

Upon completion of the three rounds you will receive a $50 gift voucher as a token of thanks for your wonderful participation.

Your participation is completely confidential and your identity will not be shared at any point. If you are willing to participate, please visit the following link:

[*Qualtrics link*]

It would be appreciated if you would be able to please complete the round 1 questionnaire by *Wednesday 30 November, 2016*.

If you have any questions about the study, please reach out either by email or you can call me on [*phone number*].

Thank you so much [*responder name*], we are so grateful!

Warm smiles

Christine McKee (Student Researcher)
Dr Peta Stapleton (Chief Investigator)

## Appendix G

### Parent Delphi Study: Qualtrics Explanatory Statement and Online Questionnaire for Round 1 (Study 3)

What factors are important for inclusion in a pre- and perinatal parenting program to maximise pre and post birth bonding between mothers, fathers and baby: A parent perspective consensus study.

Whilst education through the prenatal period is not new, current cutting edge research indicates that there are opportunities for more targeted topics, delivery methods, and processes that take into account factors that may influence the both the growth of prenates in-utero and influence who babies become post birth.

Further, there are distinct gaps in providing interventions that emphasise: the importance of a couple relationship, the transition from being a partner to a parent, the inclusion of fathers from conception onwards, providing needs-based coping strategies for this important time, and maximising secure bonding between the parents as well as between parents and baby throughout pregnancy and beyond.

You are therefore invited to participate in a Delphi expert consensus study exploring:

1. Factors that may impact both the development of prenates during gestation and who babies become post birth, and

2. The most important inclusions for modern day pre- and perinatal parenting programs to maximise bonding and attachment between parents, and between parents and babies, both pre and postnatally.

This research is being conducted by Christine McKee, PhD Candidate at Bond University, Australia, under the supervision of Dr Peta Stapleton. Ethical approval (BUHREC Application ID: 15839) was granted.

If you agree to participate, you will be asked to respond to a structured questionnaire over three rounds (where there is a gap of approximately six weeks between rounds). The questionnaires in rounds 1 and 2 will take no more than 30 to 40 minutes to complete, and in round Three, no more than 20 minutes. During these rounds you will be asked to respond to both open-ended and closed questions, enabling you to express and explain your views and perspectives based on your experiences and needs as a parent.

It is expected that the consensus rounds to be finished by April 2017, after which time you will receive a brief report of the results. As a token of thanks, upon completion of all rounds you will receive a $50 gift voucher.

For the purpose of the current study we have defined expertise as individuals who are *either* a *mother* or *father* of *at least one child*, and who *have attended a pre- and perinatal course or classes* (does not matter how many classes or how long ago) that were *facilitated by a birth professional*.

It is important to note your participation in this expert panel will be completely confidential. Whilst your identity will be known to the panel director (Christine McKee), other panellists will have no knowledge of your identity. Anonymity is vital for true consensus to be reached, free from bias and the influence of peers.

Your responses will also remain completely confidential following the conclusion of the study. Data will be stored in a secure location at Bond University for a period of five years, in accordance with the guidelines outlined by the Bond University Human Research Ethics Committee. Your participation is voluntary and you can withdraw from the study at any time.

Whilst it is not anticipated that you will experience any adverse effects from answering the questions, if you do experience distress from participation in this research, please contact the following services:

**Australia**: Parents Helplines and Hot lines available by State - *www.raisingchildren.net.au/articles/hotlines.html*

**USA**: www.nationalparenthelpline.org or Phone Toll Free: 1-855-427-2736

**UK**: Parenting Helplines and Advice on Parenting – Phone Toll Free: 0800-800-2222 or visit http://www.familylives.org.uk/

**Other World Regions**: http://www.thefamilyconservancy.org/parenting-resources-information

Should you have any complaints concerning the manner in which this research project is conducted, please do not hesitate to contact the Bond University Research Ethics Committee:

Bond University Human Research Ethics Committee Bond University Office of Research Services Bond University, Gold Coast, 4229 Australia Tel: +61 7 5595 4194
Fax: +61 7 5595 1120
Email: ethics@bond.edu.au

To assist with recruitment, if you know of other parents (mothers or fathers) who meet the criteria and would be suitable for this study, could you please share this [*link*].

We thank you for taking the time to assist us with this research.

Warmly

Christine McKee - Student Researcher
Dr Peta Stapleton - Chief Investigator

By typing *'yes'* in the box below, I agree to participate in the expert consensus study to determine factors that are important for inclusion in pre and perinatal parenting programs to maximise pre- and post-birth bonding between mums and dads, and between mums, dads, and babies. *If no, please cease this survey*.

Please note that should you need to complete the questionnaire in more than one sitting you will need to use the same computer and the same browser for this to be possible.

**Round 1 Procedure**

This survey is structured to firstly seek basic demographic information. Then you will be asked to respond to the questions that form part of the study, based on your own experience and opinions.

It would be appreciated if you could respond to this first round by *November 30, 2016*.

Feedback will follow in early January 2017, and round 2 will occur. Please do not hesitate to contact me via email at christine.mckee@student.bond.edu.au if you have any queries.

**Demographic Questions**

1. What is your full name? (this is required for the subsequent rounds of the study and will not be shared with anyone).

2. What is your email address? (this is required for the subsequent rounds of the study and will not be shared with anyone).

3. What is your age? (in years)

4. What is your gender?

   **Male**
   **Female**
   **Other: please specify**

5. What is your ethnicity?

6. What country do you live in?

7. What is your marital status?

   **Living with partner**
   **Married**
   **Divorced**
   **Separated**
   **Widowed**
   **Other: please specify**

8. How many children do you have?

**0**
**1**
**2**
**3**
**4+**

9. How old are each of your children? (in years)

10. What is the highest level of education you have completed?

    **High school or equivalent**
    **Technical/Vocational College**
    **Bachelor's degree**
    **Master's degree**
    **Doctoral degree**
    **Other: please specify**

11. Please indicate the type of the pre- and perinatal course or classes you attended that was facilitated by a birth professional. If you attended a course or classes for more than one pregnancy, please indicate for each.

12. Please indicate which *year* you attended the pre- and perinatal course or classes? If you attended a course or classes for *more than one pregnancy*, please indicate the year for each.

13. Over what period of time did the course/classes run? (in weeks, months). If you attended a course or classes for *more than one pregnancy*, please indicate for each.

14. At what stage in the pregnancy did you begin the course/classes? If you attended a course or classes for *more than one pregnancy*, please indicate for each.

15. How many sessions did it involve? If you attended a course or classes for *more than one pregnancy*, please indicate for each.

16. Did both you and your partner attend? If you attended a course or classes for *more than one pregnancy*, please indicate for each.

17. Where was the course/classes held? If you attended a course or classes for *more than one pregnancy*, please indicate for each.

18. What type of birth professional/who facilitated the course/classes? If you attended a course or classes for *more than one pregnancy*, please indicate for each.

**Round 1 Questions - PART A**

19. What factors do you believe may impact both the development of prenates during gestation and who babies become post birth?

    In your answer, please consider development in the contexts of: physical (including genetics), psychological, emotional, and neurological/cognitive.

20. When considering factors that may impact both the development of prenates during gestation and who babies become post birth, for each of the following, please indicate your level of agreement:

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **Maternal diet**
    **Nutritional Supplements (e.g., folic acid)**
    **Substances (e.g., alcohol, nicotine, pesticides)**
    **DNA**
    **Mother-prenate relationship in the womb (e.g., degree of pregnancy being wanted, level of interaction)**
    **Father-prenate relationship in the womb (e.g., degree of pregnancy being wanted, level of interaction)**
    **Life stress experienced by the expecting parents at time of conception and during the pregnancy**
    **Age of mother**
    **Level of physical activity for general health of mum during the pregnancy**
    **Maternal and paternal family history of health issues and diseases**
    **Maternal stress, anxiety and/or depression**
    **Paternal stress, anxiety and/or depression**
    **Mother's and father's/partner's perceptions (thoughts, attitudes, feelings, beliefs; both positive or negative) of each other, events and environment experienced during pregnancy**
    **Quality of relationship between the expecting couple at time of conception and during the pregnancy**
    **Maternal abuse (mental, physical, emotional)**
    **General health of mother at time of conception and during the pregnancy (e.g., weight, blood pressure)**

21. If you have any comments on any additional factors that you believe may impact both the development of prenates during gestation and who babies become post birth, please list these below so they can be added to round 2 considerations.

**Round 1 Questions - PART B**

22. What content do you think is most effective regarding your needs as a parent when considering pre- and perinatal parenting programs?

23. Please identify which of the following content you believe would be effective regarding your needs as a parent during pregnancy, when considering pre- and perinatal parenting programs. Please check *all* that apply.

    **Healthy and adaptive coping skills for the changes parenthood brings**
    **Education on natural and drug free births**
    **How to ask for the birth you want in a hospital setting**
    **How to soothe baby**
    **Sleep training**
    **General bonding and attachment skills**
    **Ways fathers/partners can bond with babies during pregnancy and post birth**

**Skills for couple connection, communication and working together**
**Social support training and how to ask for support**
**Education on developmental milestones in the womb**
**Ways a baby's growth and persona is influenced during pregnancy**
**Birthing options**
**Pregnancy health**
**Preparation for labour and birth**
**Breastfeeding**
**How to influence gene expression of the baby in-utero**
**Skills for building secure attachment between the couple**
**Being aware of generational parenting patterns**
**Education on conscious awareness of baby in-utero**
**Mindfulness skills for pregnancy, labour, birth, and post birth**
**Intentional communication with baby during pregnancy**
**Strengthening the couple relationship for the transition to parenthood (e.g., communication, role identity, maintaining intimacy, getting needs met, conflict resolution, how to emotionally support each other, create, maintain and sustain connection)**
**Ways to include dads/partners from conception onwards**
**Role identity through the transition to parenthood**
**Self-care**
**Other: please specify**

24. What content do you think is ineffective regarding your needs as a parent when considering pre- and perinatal parenting programs? (e.g., in the past parents have reported "immunisation", "focussing on drug options", and invasive procedures" as not being useful).

For each of the questions below, please share your beliefs and opinions in the context of a pre- and perinatal parenting program.

25. What stage of the pregnancy do you believe is the most effective time for parents to start in pre- and perinatal parenting programs? Why?

26. What do you believe is the most effective time for pre- and perinatal parenting programs to end? Why?

**Before birth**
**Within three months post birth**
**Within three to six months post birth**
**Within six to twelve months post birth**
**Other: please specify**

27. What do you believe is the most effective platform for delivery of pre- and perinatal parenting programs? Please check *all* that apply.

**In-person group sessions in a hospital setting**
**In-person group sessions in a training room environment**
**In-person couple sessions in a hospital setting**
**In-person couple sessions in a training room environment**

**Self-guided learning from home (e.g., with downloadable videos, worksheets, manual)**
**'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions)**
**'Live' webinar sessions that are not interactive (where a parent can listen 'live' to sessions, but cannot actively contribute)**
**Sessions delivered via home visits**
**Sessions delivered in the workplace**
**Sessions delivered in the community centres**
**Sessions delivered via phone, Skype, Zoom (or other similar platforms)**
**Other: please specify**

28. How do you believe information in pre- and perinatal parenting programs can most effectively be presented/delivered? Please check *all* that apply.

**Lecture style**
**Use of video**
**Manual/workbook**
**Experiential (e.g., practicing skills, modelling of skills, role playing, parents sharing experiences, discussions)**
**Home practice activities included to consolidate learning**
**Standardised one-size-fits-all**
**Individualised program where couples can select modules that apply to their unique circumstances**
**A combination of standardised core modules along with the ability to select other modules that applies to your unique circumstances**
**Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, take home tasks)**
**Other: please specify**

29. Who do you believe should attend pre- and perinatal parenting programs? Please check *all* that apply.

**Mum only**
**Dad/partner only**
**Both mum and dad/partner**
**Both mum and dad/partner with some sessions for dad/partner only**
**Both mum and dad/partner with some sessions for mum only**

30. Research shows that fathers/partners attend less pregnancy and parenting related sessions/programs than expecting mothers. In your opinion, what factors would contribute to that being true?

31. Which groups of parents do you believe may benefit from having access to pre- and perinatal parenting programs? Please check *all* that apply.

**First-time parents**
**Existing parents who are pregnant again**
**Pregnant teens**
**Single parents**

**Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges)**
**Same-sex couples**
**Other: please specify**

32. What do you believe is the most effective length of each session in pre- and perinatal parenting programs? Why?

33. In your opinion, what is the most effective amount of time between each session? Why?

34. What do you believe is the most effective overall length of pre- and perinatal parenting programs in time (e.g. number of weeks or months)? Why?

35. In your opinion who ought to deliver pre- and perinatal parenting programs? Please check *all* that apply.

    **OB/GYN**
    **Midwife**
    **Doula**
    **Childbirth educator**
    **Nurse**
    **Psychologist, social worker, therapist, counsellor, coach**
    **Academic researchers**
    **Parents**
    **Elders from the community**
    **Other: please specify**

36. What are the best ways pre- and perinatal parenting programs and/or facilitators of programs could maintain your level of engagement, and involvement as a parent once a program has started?

37. What other considerations (if any) do you believe are important for pre- and perinatal parenting programs to be effective?

38. If you have any additional comments regarding round 1, or if there are other questions related to the topic that you believe are important to present to the panel, please list these below so they can be added to round 2 considerations.

You have successfully completed round 1. If you have any questions, please contact me at christine.mckee@student.bond.edu.au.

The round 2 questionnaire (including round 1 feedback) will be sent within the next month.

Thank you so much. Your support in this study is greatly appreciated!

Warm wishes

Christine McKee (Student Researcher)

## Appendix H

### Parent Delphi Study: Round 2 Qualtrics Online Questionnaire (Study 3)

Welcome to round 2.

What factors are important for inclusion in pre- and perinatal parenting programs to maximise pre and post birth bonding between mothers, fathers, and baby: A parent perspective consensus study.

Firstly, I would like to thank you so much for your wonderful contribution to round 1 of this study. Collectively as an expert panel, a vast array of information was shared and collated to form round 2.

The intent of round 2 is to have you rate your level of agreement for statements that relate to each of the questions you responded to in round 1.

In round 1 there was one question where you were asked to rate your level of agreement with a series of statements. The results from this question are presented at the beginning of this survey.

The purpose of a Delphi expert consensus study is to determine consensus from the collective expert panel involved in the study, on each of the topics presented in the questions in round 1. Consensus is deemed to have been reached when 75% or more of the panel *strongly agree/agree* on an individual item or *strongly disagree/disagree* on an individual item.

Only items that do not reach consensus will then form part of the third and final round. If consensus is not reached on all items by the end of round 3, this will be discussed in the dissertation write up.

It is anticipated that this round (round 2) will take no more than 30 to 40 minutes to complete, and in round 3, no more than 20 minutes.

It is important to note your participation in this expert panel will be completely confidential. Whilst your identity is known to the panel director (Christine McKee), other panellists will have no knowledge of your identity. Anonymity is vital for true consensus to be reached, free from bias and the influence of peers.

Your responses will also remain completely confidential following the conclusion of the study. Data will be stored in a secure location at Bond University for a period of five years, in accordance with the guidelines outlined by the Bond University Human Research Ethics Committee. Your participation is voluntary and you can withdraw from the study at any time.

Whilst it is not anticipated that you will experience any adverse effects from answering the questions, if you do experience distress from participation in this research, please contact the following services:

**Australia**: Parents Helplines and Hot lines available by State - www.raisingchildren.net.au/articles/hotlines.html

**USA**: www.nationalparenthelpline.org or Phone Toll Free: 1-855-427-2736

**UK**: Parenting Helplines and Advice on Parenting – Phone Toll Free: 0800-800-2222 or visit http://www.familylives.org.uk/

**Other World Regions**: http://www.thefamilyconservancy.org/parenting-resources-information

Should you have any complaints concerning the manner in which this research project is conducted, please do not hesitate to contact the Bond University Research Ethics Committee:

Bond University Human Research Ethics Committee Bond University Office of Research Services Bond University, Gold Coast, 4229 Australia Tel: +61 7 5595 4194
Fax: +61 7 5595 1120
Email: ethics@bond.edu.au

Thank you for taking the time to complete round 2. Your contribution to this important research is so valuable and appreciated.

Warmly

Christine McKee – Student Researcher
Dr Peta Stapleton - Chief Investigator

1. What is your full name? (this is required for the subsequent rounds of the study and will not be shared with anyone).

2. What is your email address? (this is required for the subsequent rounds of the study and will not be shared with anyone).

**Outcomes from round 1**

Consensus in the expert panel is determined when at least 75% of the panel members *strongly agree/agree* on an item. The table below displays an overview of results from the question in round 1 where you were asked to rate your level of agreement on items.

**Consensus was reached on 14 out of 16 statements. For the one statement where consensus was not reached, it has been included again in round 2.**

**Table of consensus results** (as presented in Table 4, p. 195)

Whilst we recommend completing the questionnaire in one sitting if possible—for ease of staying with the flow between the topic areas—should you need to complete the questionnaire in more than one sitting, you will need to use the same computer and the same browser, for this to be possible.

**Round 2 Procedure**

As a collective group of experts, a large amount of valuable, relevant, and important

information was shared in round 1. Responses to each question have been converted to statements and you will now be asked to respond with your level of agreement to each statement.

The number of statements per question varies—some have just a few and others have more. So get yourself a delicious coffee, tea or whatever you enjoy, settle in and enjoy as you make your way through each statement. It is anticipated it will take you no more than 30 to 40 minutes in total to complete.

It would be appreciated if you could please complete your responses by *January 9, 2017*.

Feedback will follow in February 2017, and the final round (round 3) will occur.

Please do not hesitate to contact me via email at christine.mckee@student.bond.edu.au if you have any queries.

3. In round 1 we asked: 'What factors do you perceive may impact both the development of prenates during gestation and who babies become post birth?'

The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Sounds (e.g., voices, laughter, singing, talking directly to the prenate, raised voices)**
**Social support available to the mother (e.g., partner, family, friends)**
**Mother being empowered through the pregnancy and birth (e.g., by partner, self, birth professionals)**
**Mother's and father's perception of if they will be a 'good enough' parent**
**Reincarnation/past lives (baby brings who s/he is into this lifetime)**
**Age of mother**
**Mother's level of self-confidence to parent**
**Mother's unprocessed emotions relating to any previous pregnancy losses (e.g., miscarriage, abortion, twin loss, still born)**
**Father's unprocessed emotions relating to any previous pregnancy losses (e.g., miscarriage, abortion, twin loss, still born)**
**Preconception stress, support, emotions and/or use of substances**
**Ancestral story (e.g., quality of parental relationships in past generations)**
**Parental leave options and conditions (impacting thoughts on level of 'hands on' time a parent will be practically available for baby post birth)**
**Maternal and paternal family history of health issues and diseases**

4. In round 1 we asked: 'What content do you think is most effective regarding your needs as a parent when considering pre- and perinatal parenting programs?'

*This question has the most statements in the entire survey, so once you have completed this it is short and sweet moving forward!*

The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Healthy and adaptive coping skills for the changes parenthood brings**
**Education on natural and drug free births**
**How to ask for the birth you want in a hospital setting**
**How to soothe baby**
**Sleep training**
**General bonding and attachment skills**
**Ways the father/partner can bond with baby during pregnancy, and post birth**
**Skills for couple connection, communication and working together**
**Social support training and how to ask for support**
**Education on developmental milestones in the womb**
**Ways a baby's growth and persona is influenced during pregnancy**
**Birthing options**
**Pregnancy health**
**Preparation for labour and childbirth**
**Breastfeeding**
**How to influence gene expression of the baby in-utero**
**Skills for building secure attachment between the couple**
**Being aware of generational parenting patterns**
**Education on conscious awareness of baby in-utero**
**Mindfulness skills for pregnancy, labour, birth, and post birth**
**Intentional communication with baby during pregnancy**
**Strengthening the couple relationship for the transition to parenthood (e.g., communication, role identity, maintaining intimacy, getting needs met, conflict resolution, how to emotionally support each other, create, maintain and sustain connection)**
**Ways to include dads/partners from conception onwards**
**Role identity through the transition to parenthood**
**Self-care**
**Stress management skills**
**Content that considers the needs and importance of the father during pregnancy, birth, and post birth**
**Obstetric violence and how to navigate pressure by medical staff**
**How a parent's thoughts and emotions impact a prenate**
**Local support services**
**Positive strategies to manage emotional triggers and reactions during pregnancy and post birth**
**Hypnotherapy for labour and birth**
**Medical facts and positive assurance that a positive birth experience is possible**
**Content pitched to match cultural and religious backgrounds of parents**
**Content that demystifies pregnancy and birth and clearly explains how the body changes during pregnancy and post birth**
**Lifestyle impacts of parents on prenates**
**Content that focusses on the daily reality of pregnancy and parenting post birth**
**Relaxation techniques for labour and birth**
**Have guest parents share their experiences and stories**
**What to look for in baby once born to know what is normal versus something wrong**
**Breathing techniques for birth**

**Diet and exercise regimen for mother during pregnancy**
**Videos of positive birth experiences**
**Content that normalises that birth and the first months post birth may not go as planned**
**Tips on how to be a 'good enough' parent for the first six months post birth**
**Signs of postnatal depression**
**Reality of an emergency caesarean section (e.g., emotions, recovery, bonding with baby at birth, unmet birth plan expectations)**
**How to say 'no' and have freedom of choice for baby's health issues (e.g., immunisation)**
**How to hire and fire a birthing team**
**How to process emotion and trauma of any previous pregnancy losses**

5. In round 1 we asked: 'What content do you think is ineffective regarding your needs as a parent when considering pre- and perinatal parenting programs?'

   The list below represents the main themes. Please indicate your level of agreement for each item.

   For example: if you *agree* that "immunisation" is not useful as content, then you would select either *strongly agree* or *agree*. If however, you believe that immunisation would be useful content, then you would select either *disagree* or *strongly disagree*.

   *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

   **Promoting the scheduling of caesarean sections for birth**
   **Focus on birth being a medical procedure**
   **Outdated parenting philosophies**
   **Birth videos of painful labours**
   **Focus on drug use and invasive procedures in labour and birth as the only options**
   **Immunisation**
   **OB/GYNs focussing on 'what can go wrong' to promote fear and need for medical interventions for birth**
   **Content that is not contextualised for the father too**
   **Any content that disempowers a mother and her baby's natural ability to birth**
   **Any content delivered with judgement and personal bias by the facilitator**
   **Mandated breastfeeding (i.e., leads to feeling judged if physically not able)**
   **Any content that is not delivered in a way that promotes choice**
   **Any content that is delivered in a way that is condescending**

6. In round 1 we asked: 'What are the best ways pre- and perinatal parenting programs and/or facilitators of programs could maintain your level of engagement as a parent once a program has started'.

   The list below represents the main themes. Please indicate your level of agreement for each item.

   *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Delivered in your home**
**Individualised and personalised to focus on needs of each couple**
**Content that focusses on the 'why' not the mechanics**
**By creating a social/community environment**
**Content that focusses on health and wellbeing of baby**
**Interactive with other couples (e.g., role plays and conceptual development through discussion)**
**Make sessions fun, interesting and entertaining**
**Ensure skills taught can be easily used in daily life**
**Facilitator to provide feedback from skill practice so I can learn and grow**
**Sessions to be experiential and interactive with discussions**
**Opportunities to learn by doing with activities, props, live demos and tasks (e.g., nappies/diapers, dolls)**
**Content delivered without judgement**
**Discuss fears and hopes of parents**
**Share real life stories (e.g., video, guest parent speakers)**
**Create a supportive environment**
**Give practice and reflective activities to do at home between sessions**
**Keep content relevant, simple, accurate and practical**
**Seek topics from group before starting and include the topics throughout**
**Provide a schedule of topics that will be covered up front**
**Facilitator to be engaging, enthusiastic, confident, and interested in content**
**Facilitator to be emotionally connected**
**Start each session with a debrief of between session experiences**
**Focus sessions on both parents and on how to work as a team/partnership**
**Facilitator to follow up between sessions**
**To be treated as adults by the facilitator**
**Frequent breaks**
**Hospital tour**
**Receive a completion certificate**

7. In round 1 we asked: 'Which groups of parents do you believe may benefit from having access to pre- and perinatal parenting programs?' The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**First-time parents**
**Existing parents who are pregnant again**
**Pregnant teens**
**Single parents**
**Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges)**
**Same-sex couples**
**Any expecting parent who wants to attend**
**Parents wanting to have a home birth**
**Mothers having a vaginal birth after a previous caesarean section**

*You are doing great and are at the half way point. Thanks so much for your time, energy, and focus!*

8. In round 1 we asked: 'Who do you believe should attend pre- and perinatal parenting programs?' The list below represents the main themes. Please indicate your level of agreement for each item.

   *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

   **Mum only**
   **Dad/partner only**
   **Both mum and dad/partner**
   **Both mum and dad/partner with some sessions for dad/partner only**
   **Both mum and dad/partner with some sessions for mum only**
   **Siblings**
   **Grandparents**
   **Support people (other than parents)**

9. In round 1 we asked: 'In your opinion, what factors would contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?'

   The list below represents the main themes. Please indicate your level of agreement for each item.

   *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

   **Work schedule**
   **Focus of the programs on delivery of baby**
   **Perception that pregnancy and birthing is mum's role**
   **In general, men avoid medical services**
   **Fathers do not feel the content is relevant or helpful to them and are not engaged**
   **Lack of commitment to attend (competing priorities)**
   **Fear (e.g., of the unknown, having to discuss feelings, of becoming overwhelmed, of being judged by other men, of being uncomfortable)**
   **Perception of father that he cannot influence the pregnancy**
   **Societal and cultural biases/stereotypes that pregnancy and parenting is the woman's role**
   **Lack of comfort discussing personal experience in a group setting**
   **It is a sign of weakness for a father to admit he does not know everything**
   **Perceived general lack of interest**
   **Fathers may feel left out and as though they do not belong when they attend class**
   **Fathers do not directly feel the pregnancy, leading to less connection with role of being a father**
   **General lack of understanding of the importance of the role of the father in child care**
   **Poor paternal leave policies placing less importance on fathers**
   **Fathers caretaking other children whilst mum attends class**

10. In round 1 we asked: 'What stage of the pregnancy do you believe is the most effective time for parents to start in pre- and perinatal parenting programs?'

    The list below represents the main themes. Please indicate your level of agreement for each item.

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **Preconception**
    **As soon as the couple discover they are pregnant**
    **Trimester one**
    **Trimester two**
    **Trimester three**
    **After first ultrasound**
    **When the parent/s are ready**

11. In round 1 we asked: 'What do you believe is the most effective time for pre- and perinatal parenting programs to end?'

    The list below represents the main themes. Please indicate your level of agreement for each item.

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **Before birth**
    **Within three months post birth**
    **Within three to six months post birth**
    **Within six to 12 months post birth**
    **Ongoing on an as needs basis**

12. In round 1 we asked: 'How do you believe information in pre- and perinatal parenting programs can most effectively be presented/delivered?'

    The list below represents the main themes. Please indicate your level of agreement for each item.

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **Lecture style**
    **Use of video**
    **Manual/workbook**
    **Experiential (e.g., practicing skills, modelling of skills, role-playing, parents sharing experiences, discussions)**
    **Home practice activities included to consolidate learning**
    **Standardised one-size-fits-all programs**
    **Individualised programs where couples can select modules that apply to their unique circumstances**
    **A combination of standardised core modules along with the ability to select other modules that applies to your unique circumstances**

**Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, take home tasks)**
**Incorporate 'mingle-time' with refreshments where couples can get to know each other as part of the program**
**Up-to-date resources available online**
**Incorporate question and discussion time to discuss partnership and family (not just mum and baby focus)**
**Facilitator to ask for feedback and incorporate changes based on it**

13. In round 1 we asked: 'What do you believe is the most effective platform for delivery of pre- and perinatal parenting programs?

    The list below represents the main themes. Please indicate your level of agreement for each item.

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **In-person group sessions in a hospital setting**
    **In-person group sessions in a training room environment**
    **In-person couple sessions in a hospital setting**
    **In-person couple sessions in a training room environment**
    **Self-guided learning from home (e.g., with downloadable videos, worksheets, manual)**
    **'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions)**
    **'Live' webinar sessions that are not interactive (where a parent can listen 'live' to sessions, but cannot actively contribute)**
    **Sessions delivered via home visits**
    **Sessions delivered in the workplace**
    **Sessions delivered in community centres**
    **Sessions delivered via phone, Skype, Zoom (or other similar platforms)**
    **Small group sessions in home environment**
    **Father-only group sessions held monthly during pregnancy and post birth**
    **Any location that has easy access parking and refreshments provided**
    **Sessions for fathers held in a birthing room with all of the equipment there so it becomes real**

14. In round 1 we asked: 'In your opinion who ought to deliver pre- and perinatal parenting programs?'

    The list below represents the main themes. Please indicate your level of agreement for each item.

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **OB/GYN**
    **Midwife**
    **Doula**
    **Childbirth educator**
    **Nurse**

**Psychologist, social worker, therapist, counsellor, coach**
**Academic researchers**
**Parents**
**Elders from the community**
**Collaboration between a range of qualified pregnancy and birth specialists**
**Male midwives/nurses to deliver father-only sessions**
**Anyone who understands the father role in pregnancy and who can deliver material in a non-condescending way**
**Anyone who is qualified and is caring, competent, non-judgemental, and confident**
**Anyone who is qualified and engaging, approachable, and knowledgeable**

15. In round 1 we asked: 'What do you believe is the most effective length of each session in pre- and perinatal parenting programs?'

    The list below represents the main themes. Please indicate your level of agreement for each item.

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **40-45 minutes**
    **One hour**
    **1.5 hours**
    **Two hours**
    **Half Day**
    **Full Day**
    **No set-time—person specific**

16. In round 1 we asked: 'In your opinion, what is the most effective amount of time between each session?'

    The list below represents the main themes. Please indicate your level of agreement for each item.

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **Between 3-6 days**
    **One week**
    **Two weeks**
    **Three weeks**
    **One month**
    **Five weeks**
    **Three months**

17. In round 1 we asked: 'What do you believe is the most effective overall length of pre- and perinatal parenting programs in time (e.g. number of weeks or months)?'

    The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**One weekend**
**One full day**
**Several days**
**One month**
**Six weeks**
**Two months**
**Nine weeks**
**Three months**
**Six months**
**From two months preconception until 10 weeks post birth**
**From conception until post birth**
**From trimester one until birth**
**From trimester one until 12 months post birth**
**From trimester three until six weeks post birth**
**No set time—needs based of the parents**

18. If you have any additional comments regarding round 2, or if there are other questions related to the topic that you believe are important to present to the panel, please list these below so they can be added to round 3 considerations.

You have successfully completed round 2. If you have any questions, please contact me at: christine.mckee@student.bond.edu.au.

The round 3 questionnaire (including the results from round 2) will be sent in February 2017.

Thank you so much, your support in this study is greatly appreciated!

Warm wishes

Christine McKee (Student Researcher)

## Appendix I

### Parent Delphi Study: Round 3 Qualtrics Online Questionnaire (Study 3)

Welcome to the final round for this Study—round 3.

What factors are important for inclusion in pre- and perinatal parenting programs to maximise pre and post birth bonding between mothers, fathers, and baby: A parent perspective consensus study.

Thank you so much for your time, energy and opinions that went into round 2.

The intent of this final round is to share the results from round 2 and then have you rate your level of agreement for statements that relate to each of the questions where consensus was not reached in round 2.

If consensus is not reached on all items by the end of round 3, this will be discussed in the dissertation write up.

It is anticipated that this final round will take no more than 20 minutes.

It is important to note your participation in this expert panel will be completely confidential. Whilst your identity is known to the panel director (Christine McKee), other panellists will have no knowledge of your identity. Anonymity is vital for true consensus to be reached, free from bias and the influence of peers.

Your responses will also remain completely confidential following the conclusion of the study. Data will be stored in a secure location at Bond University for a period of five years in accordance with the guidelines outlined by the Bond University Human Research Ethics Committee. Your participation is voluntary and you can withdraw from the study at any time.

Whilst it is not anticipated that you will experience any adverse effects from answering the questions, if you do experience distress from participation in this research, please contact the following services:

**Australia**: Parents Helplines and Hot lines available by State - *www.raisingchildren.net.au/articles/hotlines.html*

**USA**: www.nationalparenthelpline.org or Phone Toll Free: 1-855-427-2736

**UK**: Parenting Helplines and Advice on Parenting – Phone Toll Free: 0800-800-2222 or visit http://www.familylives.org.uk/

**Other World Regions**: http://www.thefamilyconservancy.org/parenting-resources-information

Should you have any complaints concerning the manner in which this research project is conducted, please do not hesitate to contact the Bond University Research Ethics Committee:

Bond University Human Research Ethics Committee Bond University Office of Research Services Bond University, Gold Coast, 4229 Australia Tel: +61 7 5595 4194
Fax: +61 7 5595 1120
Email: ethics@bond.edu.au

Thank you for taking the time to complete the final round (round 3) of this study. Your contribution to this important research is so valuable and appreciated.

Warmly

Christine McKee – Student Researcher
Dr Peta Stapleton - Chief Investigator

1. What is your full name? (this will not be shared with anyone).

2. What is your email address? (this will not be shared with anyone).

Whilst we recommend completing the questionnaire in one sitting if possible, should you need to complete the questionnaire in more than one sitting, you will need to use the same computer and the same browser for this to be possible.

**Round 3 Procedure**

Each question has *two* parts:

The *first* is a summary of results from *all* responses to the question in round 2.

The *second* part requires that you re-rate the statements in the question where consensus was not reached. It is anticipated to take no more than 20 minutes to complete this final round.

Please note that for each question consensus in the expert panel has been determined when at least 75% of the panel members *strongly agree/agree* or *strongly disagree/disagree* on an item.

The tables throughout display an overview of results from each question in round 2, where you were asked to rate your level of agreement on items.

**Part One: Results summary from round 2**

'Factors that may impact both the development of prenates during gestation and influence who babies become post birth' (refer to Table 5, p. 197).

**Consensus was reached on 9 out of 13 statements. For the four statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

3. 'What factors do you perceive may impact both the development of prenates during gestation and influence who babies become post birth?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Reincarnation/past lives (baby brings who s/he is into this lifetime)**
**Age of mother**
**Father's unprocessed emotions relating to any previous pregnancy losses (e.g., miscarriage, abortion, twin loss, still born)**
**Ancestral story (e.g., quality of parental relationships in past generations)**

**Part One: Results summary from round 2**

'Content that is most effective regarding your needs as a parent when considering pre- and perinatal parenting programs' (refer to Table 6, p. 198).

**Consensus was reached on 38 out of 50 statements. For the 12 statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

4. 'What content do you think is most ineffective regarding your needs as a parent when considering pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Sleep training**
**Education on developmental milestones in the womb**
**How to influence gene expression of the baby in-utero**
**Being aware of generational parenting patterns**
**Education on conscious awareness of baby in-utero**
**Role identity through the transition to parenthood**
**Obstetric violence and how to navigate pressure by medical staff**
**Hypnotherapy for labour and birth**
**Content pitched to match cultural and religious backgrounds of parents**
**Videos of positive birth experiences**
**How to say 'no' and have freedom of choice for baby's health issues (e.g., immunisation)**
**How to hire and fire a birthing team**

**Part One: Results summary from round 2**

‘Content that is ineffective regarding your needs as a parent when considering pre- and perinatal parenting programs’ (refer to Table 7, p. 202).

**Consensus was reached on 0 out of 13 statements. As a result, all have been included again in round 3.**

**Part Two: Re-rate items**

'What content do you think is ineffective regarding your needs as a parent when considering pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

Please consider the *tip on how to respond* in the example below:

For example: if you *agree* that “immunisation” is not useful as content, then you would select either *strongly agree* or *agree*.

If however, you believe that immunisation would be useful content, then you would select either *disagree* or *strongly disagree*.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Promoting the scheduling of caesarean sections for birth**
**Focus on birth being a medical procedure**
**Outdated parenting philosophies**
**Birth videos of painful labours**
**Focus on drug use and invasive procedures in labour and birth as the only options**
**Immunisation**
**OB/GYNs focussing on ‘what can go wrong’ to promote fear and need for medical interventions for birth**
**Content that is not contextualised for the father too**
**Any content that disempowers a mother and her baby’s natural ability to birth**
**Any content delivered with judgement and personal bias by the facilitator**
**Mandated breastfeeding (i.e., leads to feeling judged if physically not able)**
**Any content that is not delivered in a way that promotes choice**
**Any content that is delivered in a way that is condescending**

**Part One: Results summary from round 2**

‘The best ways pre- and perinatal parenting programs and/or facilitators of a program could maintain your level of engagement and involvement as a parent once a program has started’ (refer to Table 8, p. 203).

**Consensus was reached on 24 out of 28 statements. For the four statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

5. 'What are the best ways pre- and perinatal parenting programs and/or facilitators of programs could maintain your level of engagement as a parent once a program has started?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Delivered in your home**
**Interactive with other couples (e.g., role plays, conceptual development through discussion)**
**Facilitator to follow up between sessions**
**Receive a completion certificate**

**Part One: Results summary from round 2**

'Groups of parents who may benefit from having access to pre- and perinatal parenting programs' (refer to Table 9, p. 205).

**Consensus was reached on eight out of nine statements. For the one statement where consensus was not reached, it has been included again in round 3.**

**Part Two: Re-rate items**

6. 'Which groups of parents do you believe may benefit from having access to pre- and perinatal parenting programs?'

The item below did not reach consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Existing parents who are pregnant again**

**Part One: Results summary from round 2**

'Who should attend pre- and perinatal parenting programs?' (refer to Table 10, p. 206).

**Consensus was reached on three out of eight statements. For the five statements where consensus was not reached, they have been included again.**

**Part Two: Re-rate items**

7. 'Who do you believe should attend pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Both mum and dad/partner with some sessions for dad/partner only**
**Both mum and dad/partner with some sessions for mum only**
**Siblings**
**Grandparents**
**Support people (other than parents)**

**Part One: Results summary from round 2**

'Factors that would contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers' (refer to Table 11, p. 207).

**Consensus was reached on two out of 17 statements. For the 15 statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

8. 'In your opinion, what factors would contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Focus of the programs on delivery of baby**
**Perception that pregnancy and birthing is mum's role**
**In general, men avoid medical services**
**Fathers do not feel the content is relevant or helpful to them and are not engaged**
**Lack of commitment to attend (competing priorities)**
**Fear (e.g., of the unknown, having to discuss feelings, of becoming overwhelmed, of being judged by other men, of being uncomfortable)**
**Perception of father that he cannot influence the pregnancy**
**Societal and cultural biases/stereotypes that pregnancy and parenting is the woman's role**
**Lack of comfort discussing personal experience in a group setting**
**It is a sign of weakness for a father to admit he does not know everything**
**Perceived general lack of interest**
**Fathers may feel left out and as though they do not belong when they attend class**
**Fathers do not directly feel the pregnancy, leading to less connection with role of being a father**
**Poor paternal leave policies placing less importance on fathers**
**Fathers caretaking other children whilst mum attends class**

**Part One: Results summary from round 2**

'Stage of the pregnancy that is the most effective time for parents to start in pre- and perinatal parenting programs' (refer to Table 12, p. 209).

**Consensus was reached on one out of seven statements. For the six statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

9. 'What stage of the pregnancy do you believe is the most effective time for parents to start in pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Preconception**
**As soon as the couple discover they are pregnant**
**Trimester one**
**Trimester three**
**After first ultrasound**
**When the parent/s are ready**

**Part One: Results summary from round 2**

'The most effective time for pre- and perinatal parenting programs to end' (refer to Table 13, p. 209).

**Consensus was reached on 0 out of five statements. As a result, all have been included again in round 3.**

**Part Two: Re-rate items**

10. 'What do you believe is the most effective time for pre- and perinatal parenting programs to end?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Before birth**
**Within three months post birth**
**Within three to six months post birth**
**Within six to 12 months post birth**
**Ongoing on an as needs basis**

**Part One: Results summary from round 2**

'How information in pre- and perinatal parenting programs can most effectively be presented/delivered' (refer to Table 14, p. 210).

**Consensus was reached on 10 out of 13 statements. For the three statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

11. 'How do you believe information in pre- and perinatal parenting programs can most effectively be presented/delivered?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Lecture style**
**Manual/workbook**
**Standardised one-size-fits-all program**

**Part One: Results summary from round 2**

'The most effective platform for delivery of pre- and perinatal parenting programs' (refer to Table 15, p. 211).

**Consensus was reached on 0 out of 15 statements. As a result, all have been included again in round 3.**

**Part Two: Re-rate items**

12. 'What do you believe is the most effective platform for delivery of pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**In-person group sessions in a hospital setting**
**In-person group sessions in a training room environment**
**In-person couple sessions in a hospital setting**
**In-person couple sessions in a training room environment**
**Self-guided learning from home (e.g., with downloadable videos, worksheets, manual)**
**'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions)**
**'Live' webinar sessions that are not interactive (where a parent can listen 'live' to sessions, but cannot actively contribute)**
**Sessions delivered via home visits**
**Sessions delivered in the workplace**
**Sessions delivered in community centres**
**Sessions delivered via phone, Skype, Zoom (or other similar platforms)**
**Small group sessions in home environment**

**Father-only group sessions held monthly during pregnancy and post birth**
**Any location that has easy access parking and refreshments provided**
**Sessions for fathers held in a birthing room with all of the equipment there so it becomes real**

**Part One: Results summary from round 2**

‘Who ought to deliver pre- and perinatal parenting programs?’ (refer to Table 16, p. 213).

**Consensus was reached on seven out of 14 statements. For the seven statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

13. 'In your opinion who ought to deliver pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**OB/GYN**
**Doula**
**Psychologist, social worker, therapist, counsellor, coach**
**Academic researchers**
**Parents**
**Elders from the community**
**Male midwives/nurses to deliver father-only sessions**

**Part One: Results summary from round 2**

‘The most effective length of each session in pre- and perinatal parenting programs’ (refer to Table 17, p. 214).

**Consensus was reached on 0 out of seven statements. As a result, all have been included again in round 3.**

**Part Two: Re-rate items**

14. 'What do you believe is the most effective length of each session in pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**40-45 minutes**
**One hour**
**1.5 hours**

**Two hours**
**Half day**
**Full day**
**No set time—person specific**

**Part One: Results summary from round 2**

‘The most effective amount of time between each session’ (refer to Table 18, p. 214).

**Consensus was reached on one out of seven statements. For the six statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

15. 'In your opinion, what is the most effective amount of time between each session?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Between 3-6 days**
**One week**
**Two weeks**
**Three weeks**
**One month**
**Five weeks**

**Part One: Results summary from round 2**

‘The most effective overall length of pre- and perinatal parenting programs, in time? (e.g., number of weeks or months)’ (refer to Table 19, p. 215).

**Consensus was reached on 0 out of 15 statements. As a result, all have been included again in round 3.**

**Part Two: Re-rate items**

16. 'What do you believe is the most effective overall length of pre- and perinatal parenting programs in time? (e.g., number of weeks or months)'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**One weekend**
**One full day**
**Several days**
**One month**

**Six weeks**
**Two months**
**Nine weeks**
**Three months**
**Six months**
**From two months preconception until 10 weeks post birth**
**From conception until post birth**
**From trimester one until birth**
**From trimester one until 12 months post birth**
**From trimester three until six weeks post birth**
**No set time—needs based of the parents**

You have successfully completed round 3, the final round of the study. It is anticipated that a link to the results from this round will be sent in March 2017.

I am so grateful for your participation throughout the entire study, thank you so much! If you have any questions, please contact me at christine.mckee@student.bond.edu.au.

Warm wishes

Christine McKee (Student Researcher)

## Appendix J

### Parent Delphi Study: Items by Question that Attained Consensus across Rounds 1 to 3 (Study 3)

| Question and Items | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| *Factors that may impact both the development of prenates during gestation and influence who babies become post birth* | | | | |
| Maternal diet ** | 1.28 | 1.00 | 0.46 | 100 |
| Nutritional supplements ** | 1.72 | 2.00 | 0.75 | 82.8 |
| Substances (e.g., alcohol, nicotine, pesticides) ** | 1.38 | 1.00 | 1.05 | 93.1 |
| DNA ** | 1.52 | 1.00 | 0.69 | 89.7 |
| Mother-prenate relationship in the womb (e.g., degree of being wanted, interaction between mum and prenate throughout the pregnancy) ** | 1.24 | 1.00 | 0.58 | 93.1 |
| Father-prenate relationship in the womb (e.g., degree of being wanted, interaction between dad and prenate throughout the pregnancy) ** | 1.66 | 1.00 | 0.86 | 82.8 |
| Life stress experienced by mum and dad at time of conception and during the pregnancy ** | 1.28 | 1.00 | 0.45 | 100 |
| Level of physical activity for general health of mum during the pregnancy ** | 1.72 | 2.00 | 0.59 | 93.1 |
| Maternal stress, anxiety and/or depression ** | 1.21 | 1.00 | 0.41 | 100 |
| Paternal stress, anxiety and/or depression ** | 1.69 | 2.00 | 0.71 | 86.2 |
| Mother's and father's perceptions (thoughts, | | | | |

| | | | | |
|---|---|---|---|---|
| attitudes, feelings, beliefs; both positive or negative) of each other, events and environment experienced during pregnancy ** | 1.52 | 1.00 | 0.57 | 96.6 |
| Quality of relationship between the mother and father at time of conception and during the pregnancy ** | 1.59 | 1.00 | 0.83 | 86.2 |
| Maternal abuse (mental, physical, emotional) ** | 1.28 | 1.00 | 0.53 | 96.6 |
| General health of mother at time of conception and during the pregnancy (e.g., weight, blood pressure) ** | 1.69 | 2.00 | 0.71 | 86.2 |
| Sounds (e.g., voices, laughter, singing, talking directly to prenates, raised voices) | 1.68 | 2.00 | 0.82 | 96.3 |
| Social support available to the mother (e.g., partner, family, friends) | 1.75 | 1.50 | 0.97 | 81.5 |
| Mother being empowered through the pregnancy and birth (e.g., by partner, self, birth professionals) | 1.86 | 2.00 | 0.93 | 81.5 |
| Mother's and father's perception of if they will be a 'good enough' parent | 2.04 | 2.00 | 0.92 | 77.8 |
| Mother's level of self-confidence to parent | 1.82 | 2.00 | 0.82 | 81.5 |
| Mother's unprocessed emotions relating to any previous pregnancy losses (e.g., miscarriage, abortion, twin loss, still born) | 1.61 | 1.50 | 0.69 | 88.9 |
| Preconception stress, support, emotions and/or use of substances | 1.39 | 1.00 | 0.86 | 92.6 |

| | | | | |
|---|---|---|---|---|
| Parental leave options and conditions (impacting thoughts on level of 'hands on' time a parent will be practically available for baby post birth) | 1.82 | 2.00 | 0.86 | 77.8 |
| Maternal and paternal family history of health issues and diseases ** | 1.82 | 2.00 | 0.82 | 81.5 |
| *Content perceived to be most effective regarding your needs as a parent when considering PPN parenting programs* | | | | |
| Healthy and adaptive coping skills for the changes parenthood brings ** | 1.46 | 1.00 | 0.84 | 96.3 |
| Education on natural and drug-free births ** | 2.00 | 2.00 | 0.98 | 77.8 |
| How to ask for the birth you want in a hospital setting ** | 1.86 | 2.00 | 0.89 | 81.5 |
| How to soothe baby ** | 1.46 | 1.00 | 0.88 | 92.6 |
| Sleep training ** | 2.00 | 2.00 | 0.60 | 91.3 |
| General bonding and attachment skills ** | 1.68 | 2.00 | 0.86 | 92.6 |
| Ways the father can bond with baby during pregnancy and post birth ** | 1.68 | 2.00 | 0.86 | 92.6 |
| Skills for couple connection, communication, and working together ** | 1.64 | 1.00 | 0.95 | 85.2 |
| Social support training and how to ask for support ** | 1.86 | 2.00 | 1.04 | 77.8 |
| Education on developmental milestones in the womb ** | 1.87 | 2.00 | 0.63 | 87.0 |
| Ways a baby's growth and persona is influenced during pregnancy ** | 1.82 | 2.00 | 0.91 | 81.5 |

| | | | | |
|---|---|---|---|---|
| Birthing options ** | 1.64 | 2.00 | 0.73 | 92.6 |
| Pregnancy health ** | 1.61 | 1.00 | 0.88 | 96.3 |
| Preparation for labour and childbirth ** | 1.61 | 1.00 | 0.88 | 92.6 |
| Breastfeeding ** | 1.61 | 1.00 | 0.92 | 88.9 |
| Skills for building secure attachment between the couple ** | 1.86 | 2.00 | 0.93 | 81.5 |
| Mindfulness skills for pregnancy, labour, birth, and post birth ** | 1.68 | 2.00 | 0.72 | 92.6 |
| Intentional communication with baby during pregnancy ** | 1.79 | 1.50 | 0.99 | 77.8 |
| Strengthening the couple relationship for the transition to parenthood (e.g., communication, role identity, maintaining intimacy, getting needs met, conflict resolution, how to emotionally support each other, create, maintain and sustain connection) ** | 1.61 | 1.00 | 0.92 | 88.9 |
| Ways to include dad/partner from conception onwards ** | 1.64 | 1.00 | 0.83 | 85.2 |
| Self-care ** | 1.68 | 1.50 | 0.91 | 88.9 |
| Stress management skills | 1.61 | 1.00 | 0.88 | 92.6 |
| Content that considers the needs and importance of the father during pregnancy, birth and post birth | 1.71 | 2.00 | 0.76 | 88.9 |
| How a parent's thoughts and emotions impact prenates | 1.64 | 1.50 | 0.87 | 92.6 |
| Local support services | 1.82 | 2.00 | 0.86 | 88.9 |
| Positive strategies to manage emotional triggers and reactions during pregnancy and | | | | |

| | | | | |
|---|---|---|---|---|
| post birth | 1.75 | 2.00 | 0.89 | 92.6 |
| Medical facts and positive assurance that a positive birth experience is possible | 1.86 | 2.00 | 0.93 | 77.8 |
| Content that demystifies pregnancy and birth, and clearly explain how the body changes during pregnancy and post birth | 1.64 | 1.00 | 0.91 | 88.9 |
| Lifestyle impacts of parents on prenates | 1.61 | 1.00 | 0.99 | 88.9 |
| Content that focusses on the daily reality of pregnancy and parenting post birth | 1.68 | 2.00 | 0.86 | 92.6 |
| Relaxation techniques for labour and birth | 1.61 | 1.50 | 0.83 | 96.3 |
| Have guest parents share their experiences and stories | 2.18 | 2.00 | 0.98 | 81.5 |
| What to look for in baby once born to know what is normal versus something wrong | 1.82 | 2.00 | 1.06 | 88.9 |
| Breathing techniques for birth | 1.64 | 1.00 | 0.91 | 88.9 |
| Diet and exercise regimen for mother during pregnancy | 1.64 | 1.00 | 1.03 | 85.2 |
| Content that normalises that birth and the first months post birth may not go as planned | 1.82 | 2.00 | 0.95 | 81.5 |
| Tips on how to be a good enough parent for the first six months post birth | 1.68 | 1.50 | 0.92 | 88.9 |
| Signs of postnatal depression | 1.46 | 1.00 | 0.84 | 96.3 |
| Reality of an emergency caesarean section (e.g., emotions, recovery, bonding with baby at birth, unmet birth plan expectations) | 1.75 | 2.00 | 0.93 | 92.6 |

| | | | | |
|---|---|---|---|---|
| How to process emotion and trauma of any previous pregnancy losses | 1.82 | 2.00 | 0.98 | 88.9 |
| *Content not perceived to be ineffective regarding your needs as a parent when considering PPN parenting programs* | | | | |
| Outdated parenting philosophies | 2.22 | 2.00 | 1.20 | 78.3 |
| Focus on drug-use and invasive procedures in labour and birth as the only options | 2.00 | 2.00 | 1.13 | 78.3 |
| Any content delivered with judgement and personal bias by the facilitator | 1.91 | 1.00 | 1.24 | 78.3 |
| Any content that disempowers a mother and her baby's natural ability to birth | 1.91 | 1.00 | 1.24 | 78.3 |
| Any content that is not delivered in a way that promotes choice | 1.78 | 1.00 | 1.22 | 82.6 |
| Any content that is delivered in a way that is condescending | 1.87 | 1.00 | 1.22 | 78.3 |
| *The best ways PPN parenting programs and/or facilitators of programs could maintain level of engagement and involvement for parents once a program has started* | | | | |
| Individualised and personalised to focus on needs of each couple | 1.79 | 2.00 | 0.63 | 88.9 |
| Content that focusses on the *why* not the mechanics | 1.96 | 2.00 | 0.69 | 85.2 |
| By creating a social/community environment | 1.93 | 2.00 | 0.72 | 85.2 |

| | | | | |
|---|---|---|---|---|
| Content that focusses on health and wellbeing of baby | 1.50 | 1.50 | 0.51 | 100 |
| Interactive with other couples (e.g., role plays, conceptual development through discussion) | 2.17 | 2.00 | 0.65 | 78.3 |
| Make sessions fun, interesting, and entertaining | 1.29 | 1.00 | 0.46 | 100 |
| Ensure skills taught can be easily used in daily life | 1.21 | 1.00 | 0.42 | 100 |
| Facilitator to provide feedback from skill practice so I can learn and grow | 1.79 | 2.00 | 0.83 | 81.5 |
| Sessions to be experiential and interactive with discussions | 1.61 | 1.00 | 0.79 | 88.9 |
| Opportunities to learn by doing with activities, props, live demos and tasks (e.g., nappies/diapers, dolls) | 1.36 | 1.00 | 0.62 | 92.6 |
| Content delivered without judgement | 1.25 | 1.00 | 0.44 | 100 |
| Discuss fears and hopes of parents | 1.39 | 1.00 | 0.50 | 100 |
| Share ‘real life’ stories (e.g., video, guest parent speakers) | 1.61 | 2.00 | 0.57 | 96.3 |
| Create a supportive environment | 1.32 | 1.00 | 0.48 | 100 |
| Give practice and reflective activities to do at home between sessions | 1.93 | 2.00 | 0.77 | 81.5 |
| Keep content relevant, simple, accurate and practical | 1.21 | 1.00 | 0.42 | 100 |
| Seek topics from group before starting and include the topics throughout | 1.82 | 2.00 | 0.77 | 85.2 |

| | | | | |
|---|---|---|---|---|
| Provide a schedule of topics that will be covered up front | 1.61 | 2.00 | 0.63 | 92.6 |
| Facilitator to be engaging, enthusiastic, confident, and interested in content | 1.21 | 1.00 | 0.42 | 100 |
| Facilitator to be emotionally connected | 1.43 | 1.00 | 0.57 | 96.3 |
| Start each session with a debrief of between session experiences | 1.61 | 1.00 | 0.74 | 88.9 |
| Focus sessions on both parents and on how to work as a team/partnership | 1.29 | 1.00 | 0.46 | 100 |
| To be treated as adults by the facilitator | 1.32 | 1.00 | 0.48 | 100 |
| Frequent breaks | 1.93 | 2.00 | 0.86 | 81.5 |
| Hospital tour | 1.57 | 1.00 | 0.74 | 85.2 |
| *Factors that may contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers* | | | | |
| Work schedule | 1.89 | 2.00 | 1.03 | 85.2 |
| General lack of understanding of the importance of the role of the father in child care | 1.89 | 2.00 | 1.03 | 77.8 |
| Perception that pregnancy and birthing is mum's role | 2.26 | 2.00 | 0.92 | 78.3 |
| *Groups of parents who may benefit from having access to PPN parenting programs* | | | | |
| First-time parents ** | 1.04 | 1.00 | 0.19 | 100 |
| Pregnant teens ** | 1.07 | 1.00 | 0.26 | 100 |
| Single parents ** | 1.36 | 1.00 | 0.62 | 92.6 |

| | | | | |
|---|---|---|---|---|
| Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges) ** | 1.21 | 1.00 | 0.42 | 100 |
| Same-sex couples ** | 1.61 | 1.00 | 0.74 | 85.2 |
| Any expecting parent who wants to attend | 1.21 | 1.00 | 0.42 | 100 |
| Parents wanting to have a home birth | 1.32 | 1.00 | 0.67 | 96.3 |
| Mothers having a vaginal birth after a previous caesarean section | 1.39 | 1.00 | 0.69 | 96.3 |
| *Who should attend PPN parenting programs* | | | | |
| Mum only ** | 4.25 | 4.00 | 0.75 | 81.4 (Disagree) |
| Dad only ** | 4.14 | 4.00 | 0.93 | 81.4 (Disagree) |
| Both mum and dad/partner ** | 1.14 | 1.00 | 0.36 | 100 |
| Both mum and dad/partner with some sessions for dad/partner only ** | 2.09 | 2.00 | 0.85 | 78.3 |
| *Stage of the pregnancy that may be the most effective time for parents to start in PPN parenting programs* | | | | |
| Trimester two | 2.04 | 2.00 | 1.04 | 77.8 |
| When the parent/s are ready | 2.04 | 2.00 | 0.98 | 78.3 |
| *How information in PPN parenting programs can most effectively be presented/delivered* | | | | |
| Use of video ** | 2.18 | 2.00 | 0.82 | 81.5 |

| | | | | |
|---|---|---|---|---|
| Experiential (e.g., practicing skills, modelling of skills, role playing, parent's sharing experiences, discussions) ** | 1.64 | 1.00 | 0.95 | 81.5 |
| Home practice activities to consolidate learning ** | 1.71 | 2.00 | 0.71 | 92.6 |
| Individualised program where couples can select modules that apply to their unique circumstances ** | 1.82 | 2.00 | 0.67 | 85.2 |
| A combination of standardised core modules along with the ability to select other modules that apply to your unique circumstances ** | 1.50 | 1.50 | 0.51 | 100 |
| Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, printed resources, take home tasks) ** | 1.61 | 1.00 | 0.79 | 88.9 |
| Incorporate mingle time with refreshments where couples can get to know each other as part of the program | 1.82 | 2.00 | 0.86 | 88.9 |
| Up-to-date resources available online | 1.43 | 1.00 | 0.57 | 96.3 |
| Incorporate question and discussion time to discuss partnership and family (not just mum and baby focus) | 1.54 | 1.00 | 0.84 | 85.2 |
| Facilitator to ask for feedback and incorporate changes based on it | 1.50 | 1.00 | 0.64 | 92.6 |
| *The most effective platform for delivery of PPN parenting programs* | | | | |
| In-person group sessions in a hospital setting ** | 2.17 | 2.00 | 1.15 | 78.3 |

| | | | | |
|---|---|---|---|---|
| *Who ought to deliver PPN parenting programs* | | | | |
| Midwife ** | 1.64 | 2.00 | 0.62 | 92.6 |
| Childbirth educator ** | 1.71 | 2.00 | 0.81 | 96.3 |
| Nurse ** | 1.86 | 2.00 | 0.80 | 81.5 |
| Collaboration between a range of qualified pregnancy and birth specialists | 1.36 | 1.00 | 0.49 | 100 |
| Anyone who understands the father role in pregnancy and who can deliver material in a non-condescending way | 1.79 | 2.00 | 0.80 | 77.8 |
| Anyone who is qualified and is caring, competent, non-judgmental and confident | 1.54 | 1.00 | 0.58 | 96.3 |
| Anyone who is qualified and engaging, approachable and knowledgeable | 1.57 | 1.00 | 0.74 | 92.6 |
| Academic researchers ** | 4.17 | 4.00 | 0.65 | 86.9 (Disagree) |
| *The most effective amount of time between each session* | | | | |
| Three months | 4.15 | 4.00 | 0.77 | 85.2 (Disagree) |
| Five weeks | 4.09 | 4.00 | 0.79 | 82.6 (Disagree) |

** Item originated from the literature

## Appendix K

### Parent Delphi Study: Items by Question that Did Not Attain Consensus across Rounds 1 to 3 (Study 3)

| Question/Items | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| *Factors that may impact both the development of prenates during gestation and influence who babies become post birth* | | | | |
| Age of mother ** | 2.22 | 2.00 | 0.99 | 73.9 |
| Reincarnation/past lives (baby brings who s/he is into this lifetime) | 3.26 | 3.00 | 1.25 | 43.5 (Disagree) |
| Father's unprocessed emotions relating to any previous pregnancy losses (e.g., miscarriage, abortion, twin loss, still born) | 2.74 | 3.00 | 0.96 | 47.8 |
| Ancestral story (e.g., quality of parental relationships in past generations) | 2.43 | 2.00 | 0.99 | 65.2 |
| *Content perceived to be most effective regarding your needs as a parent when considering PPN parenting programs* | | | | |
| How to influence gene expression of the baby in-utero ** | 2.83 | 3.00 | 1.11 | 47.8 |
| Being aware of generational parenting patterns ** | 2.48 | 2.00 | 0.99 | 60.9 |
| Education on conscious awareness of baby in-utero ** | 2.30 | 2.00 | 0.76 | 69.6 |

| | | | | |
|---|---|---|---|---|
| Role identity through the transition to parenthood ** | 2.17 | 2.00 | 0.83 | 73.9 |
| Obstetric violence and how to navigate pressure my medical staff | 2.13 | 2.00 | 1.18 | 69.6 |
| Hypnotherapy for labour and birth | 2.61 | 3.00 | 1.12 | 43.5 |
| Content pitched to match cultural and religious backgrounds of parents | 2.43 | 2.00 | 1.08 | 60.9 |
| Videos of positive birth experiences | 2.13 | 2.00 | 0.87 | 65.2 |
| How to say 'no' and have freedom of choice for baby's health issues (e.g., immunisation) | 2.13 | 2.00 | 1.14 | 69.6 |
| How to hire and fire a birthing team | 2.39 | 2.00 | 0.89 | 60.9 |
| *Content perceived to be ineffective regarding your needs as a parent when considering PPN parenting programs* | | | | |
| Promoting the scheduling of caesarean sections for birth | 2.26 | 2.00 | 1.18 | 60.9 |
| Focus on birth being a medical procedure | 2.39 | 2.00 | 1.41 | 65.2 |
| Birth videos of painful labours | 2.04 | 2.00 | 1.22 | 73.9 |
| Immunisation | 3.30 | 4.00 | 1.46 | 56.5 (Disagree) |
| OB/GYNs focussing on what can go wrong to promote fear and need for medical interventions for birth | 2.13 | 2.00 | 1.25 | 65.2 |

| | | | | |
|---|---|---|---|---|
| Content that is not contextualised for the father too | 2.52 | 2.00 | 1.24 | 56.5 |
| Mandated breastfeeding (i.e., leads to feeling judged if physically not able) | 1.91 | 2.00 | 1.08 | 73.9 |
| *The best ways PPN pregnancy programs and/or facilitators of programs could maintain level of engagement and involvement for parents once a program has started* | | | | |
| Delivered in your home | 2.74 | 3.00 | 1.05 | 47.8 |
| Facilitator to follow up between sessions | 2.39 | 2.00 | 0.78 | 60.9 |
| Receive a completion certificate | 3.57 | 4.00 | 1.08 | 52.1 (Disagree) |
| *Factors that may contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers* | | | | |
| Focus of the programs on delivery of baby | 2.87 | 2.00 | 1.06 | 56.5 |
| In general, men avoid medical services | 2.96 | 3.00 | 1.07 | 43.5 |
| Fathers do not feel the content is relevant or helpful to them and are not engaged | 2.48 | 2.00 | 1.12 | 65.2 |
| Lack of commitment to attend (competing priorities) | 2.48 | 2.00 | 1.16 | 69.6 |
| Fear (e.g., of the unknown, having to discuss feelings, of becoming | | | | |

| | | | | |
|---|---|---|---|---|
| overwhelmed, of being judged by other men, of being uncomfortable) | 2.61 | 2.00 | 1.03 | 60.9 |
| Perception of father that he cannot influence the pregnancy | 2.61 | 2.00 | 1.08 | 56.5 |
| Societal and cultural biases/stereotypes that pregnancy and parenting is the woman's role | 2.39 | 2.00 | 0.94 | 73.9 |
| Lack of comfort discussing personal experience in a group setting | 2.43 | 2.00 | 1.04 | 69.6 |
| It is a sign of weakness for a father to admit he does not know everything | 3.52 | 4.00 | 0.99 | 60.8 (Disagree) |
| Perceived general lack of interest | 3.43 | 4.00 | 1.08 | 56.5 (Disagree) |
| Fathers may feel left out and as though they do not belong when they attend class | 2.43 | 2.00 | 0.73 | 69.6 |
| Fathers do not directly feel the pregnancy, leading to less connection with role of being a father | 3.00 | 3.00 | 1.13 | 47.8 |
| Poor paternal leave policies placing less importance on fathers | 2.35 | 2.00 | 1.15 | 65.2 |
| Fathers caretaking other children whilst mum attends class | 2.48 | 2.00 | 0.90 | 60.9 |
| *Groups of parents who may benefit from having access to PPN parenting programs* | | | | |
| Existing parents who are pregnant again | 2.30 | 2.00 | 0.88 | 60.9 |

| | | | | |
|---|---|---|---|---|
| *Who should attend PPN parenting programs* | | | | |
| Both mum and dad/partner with some sessions for mum only ** | 2.43 | 2.00 | 0.84 | 60.9 |
| Siblings | 3.22 | 3.00 | 0.79 | 34.7 (Disagree) |
| Grandparents | 3.39 | 4.00 | 0.84 | 52.1 (Disagree) |
| Support people (other than parents) | 2.57 | 2.00 | 0.99 | 52.1 |
| *Stage of the pregnancy that may be the most effective time for parents to start in PPN parenting programs* | | | | |
| Preconception | 3.13 | 3.00 | 1.06 | 39.1 (Disagree) |
| As soon as the couple discover they are pregnant | 2.43 | 2.00 | 1.16 | 52.2 |
| Trimester one | 2.39 | 2.00 | 0.78 | 60.9 |
| Trimester three | 2.74 | 2.00 | 1.36 | 52.2 |
| After first ultrasound | 2.78 | 3.00 | 0.99 | 47.8 |
| *The most effective time for PPN parenting programs to end* | | | | |
| Before birth ** | 3.91 | 4.00 | 1.20 | 73.9 (Disagree) |
| Within three months post birth ** | 2.91 | 3.00 | 1.08 | 39.1 |
| Within three to six months post birth ** | 2.78 | 3.00 | 0.99 | 43.5 |
| Within six to 12 months post birth ** | 2.83 | 3.00 | 1.11 | 39.1 |
| Ongoing on an as needs basis | 2.22 | 2.00 | 1.09 | 56.5 |

| | | | | |
|---|---|---|---|---|
| *How information in PPN parenting programs can most effectively be presented/delivered* | | | | |
| Lecture style ** | 3.35 | 4.00 | 1.15 | 52.2 (Disagree) |
| Manual/workbook ** | 3.35 | 3.00 | 1.03 | 47.8 (Disagree) |
| Standardised one-size-fits-all program ** | 4.00 | 4.00 | 0.95 | 73.9 (Disagree) |
| *The most effective platform for delivery of PPN parenting programs* | | | | |
| In-person group sessions in a training room environment ** | 2.43 | 2.00 | 1.08 | 69.6 |
| In-person couple session in a hospital setting ** | 2.52 | 2.00 | 0.95 | 60.9 |
| In-person couple sessions in a training room environment ** | 2.70 | 2.00 | 1.02 | 60.9 |
| Self-guided learning from home (e.g., with downloadable videos, worksheets, manual) ** | 2.83 | 2.00 | 1.03 | 56.5 |
| 'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions) ** | 2.48 | 2.00 | 1.24 | 69.6 |
| 'Live' webinar sessions that are not interactive (where a parent can listen 'live' but cannot actively contribute) ** | 3.61 | 4.00 | 0.89 | 60.9 (Disagree) |
| Sessions delivered via home visits ** | 2.52 | 2.00 | 1.08 | 60.9 |

| | | | | |
|---|---|---|---|---|
| Sessions delivered in the workplace ** | 3.83 | 4.00 | 0.98 | 69.6 (Disagree) |
| Sessions delivered in community centres ** | 2.17 | 2.00 | 0.94 | 73.9 |
| Sessions delivered via phone, Skype, Zoom (or other similar platforms) ** | 2.74 | 2.00 | 1.14 | 56.5 |
| Small group sessions in home environment | 2.48 | 2.00 | 1.12 | 65.2 |
| Father-only group sessions held monthly during pregnancy and post birth | 3.00 | 3.00 | 0.85 | 34.8 |
| Any location that has easy access parking and refreshments provided | 2.70 | 3.00 | 1.26 | 47.8 |
| Sessions for fathers held in a birthing room with all of the equipment there so it becomes 'real' | 2.61 | 3.00 | 1.12 | 47.8 |
| *Who ought to deliver PPN parenting programs* | | | | |
| OB/GYN ** | 2.61 | 2.00 | 1.31 | 65.2 |
| Doula ** | 2.43 | 2.00 | 1.08 | 69.6 |
| Psychologist, social worker, therapist, counsellor, coach ** | 2.87 | 3.00 | 1.14 | 39.1 |
| Parents ** | 2.87 | 3.00 | 1.06 | 43.5 |
| Elders from the community ** | 3.09 | 3.00 | 0.99 | 39.1 (Disagree) |
| Male midwives/nurses to deliver father-only sessions | 2.87 | 3.00 | 0.82 | 39.1 |
| *The most effective length of each session in PPN parenting programs* | | | | |

| | | | | |
|---|---|---|---|---|
| 40-45 minutes | 3.13 | 3.00 | 1.18 | 39.1 (Disagree) |
| One hour | 3.00 | 3.00 | 1.13 | 43.5 |
| 1.5 hours | 2.87 | 3.00 | 0.92 | 30.4 |
| Two hours | 2.26 | 2.00 | 1.18 | 60.9 |
| Half day | 3.13 | 3.00 | 1.18 | 47.8 (Disagree) |
| Full day | 3.22 | 3.00 | 1.17 | 39.1 (Disagree) |
| No set-time—person specific | 3.09 | 3.00 | 1.08 | 34.8 (Disagree) |
| *The most effective amount of time between each session* | | | | |
| Between 3-6 days | 3.52 | 4.00 | 0.89 | 60.9 (Disagree) |
| One week | 2.35 | 2.00 | 1.11 | 69.6 |
| Two weeks | 2.13 | 2.00 | 1.06 | 73.9 |
| Three weeks | 3.35 | 4.00 | 0.83 | 56.5 (Disagree) |
| One month | 3.22 | 4.00 | 1.35 | 52.2 (Disagree) |
| *The most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)* | | | | |
| One weekend | 3.70 | 4.00 | 1.02 | 65.2 (Disagree) |
| One full day | 3.65 | 4.00 | 1.03 | 60.8 (Disagree) |
| Several days | 3.13 | 3.00 | 1.01 | 39.1 (Disagree) |
| One month | 3.48 | 4.00 | 1.04 | 56.5 (Disagree) |

| | | | | |
|---|---|---|---|---|
| Six weeks | 3.17 | 3.00 | 1.11 | 43.5 (Disagree) |
| Two months | 3.22 | 3.00 | 1.14 | 47.8 (Disagree) |
| Nine weeks | 3.26 | 3.00 | 1.10 | 47.8 (Disagree) |
| Three months | 3.26 | 3.00 | 1.01 | 43.5 (Disagree) |
| Six months | 3.00 | 3.00 | 1.00 | 39.1 (Disagree) |
| From two months preconception until 10 weeks post birth | 3.04 | 3.00 | 1.19 | 34.8 |
| From conception until post birth | 3.00 | 3.00 | 1.17 | 43.5 (Disagree) |
| From trimester one until birth | 3.00 | 3.00 | 1.13 | 39.1 (Disagree) |
| From trimester one until 12 months post birth | 3.00 | 3.00 | 1.04 | 34.8 (Disagree) |
| From trimester three until six weeks post birth | 3.22 | 3.00 | 0.90 | 47.8 (Disagree) |
| No set time—needs based of the parents | 2.70 | 3.00 | 1.15 | 43.5 |

** Item originated from the literature

## Appendix L

### Parent Delphi Study: Summary of Key Recommendations from Study 3

| *Topic:* sub-topic | Item Description |
|---|---|
| *Content categories for inclusion in future PPN parenting programs:* | |
| Factors that may impact both the development of prenates and who babies become post birth | |
| | Maternal diet |
| | Nutritional supplements |
| | Impact of substance use (e.g., alcohol, nicotine, pesticides) |
| | DNA |
| | Mother-prenate and father-prenate relationship in the womb |
| | Life stress experienced by mum and dad at time of conception and during the pregnancy |
| | Level of physical activity for general health of mum during the pregnancy |
| | Maternal and paternal stress, anxiety and/or depression |
| | Mother's and father's perceptions (thoughts, attitudes, feelings, beliefs; both positive or negative) of each other, events, and environment experienced during pregnancy) |
| | Quality of relationship between the mother and father at time of conception and during the pregnancy |
| | Maternal abuse (mental, physical, emotional) |
| | General health of mother at time of conception and during the pregnancy |
| | Sounds (e.g., voices, laughter, singing, talking directly to prenates, raised voices) |
| | Social support available to the mother |
| | Mothers being empowered through pregnancies and birth |
| | Mother's and father's perception of if they will be a 'good enough' parent |
| | Mother's level of self-confidence to parent |
| | Mother's unprocessed emotions relating to any previous pregnancy losses |
| | Navigating the practicalities of parental leave options and conditions to maximise 'hands-on' time |
| | Maternal and paternal family history of health issues and diseases |

*Content that supports parents' needs*

- During pregnancy
  - Developmental milestones in the womb
  - Social support training and how to ask for support
  - Components of a healthy pregnancy
  - Mindfulness skills for pregnancy, labour, birth and post birth
  - Intentional communication with baby during pregnancy
  - Diet and exercise during pregnancy
  - Mother's body changes during pregnancy
  - How a father can bond with baby during pregnancy and post birth
  - Understanding the needs and importance of dad/partner and ways to include him from conception onwards
  - Optional module on latest research trends (e.g., epigenetics and transgenerational imprinting)
- During labour and birth
  - All birthing options available
  - How to have a natural and drug-free birth
  - The facts of a caesarean section birth—during, after, emotions, recovery, bonding with baby
  - How to ask for the birth you want in a hospital setting
  - Preparation for labour and childbirth
  - Breathing techniques for labour and birth
  - Medical facts relating to birth and how to have a positive birth experience
  - Relaxation techniques for labour and birth
  - Parent birth stories and parenting experiences
  - Normalising birth and that a birth plan may not go to plan
- Post birth
  - Breastfeeding (why and how)
  - How to soothe baby post birth
  - Sleep training
  - How to maximise bonding and attachment
  - Normal versus abnormal baby behaviour post birth
  - Being a 'good enough' parent post birth
  - Signs of post-natal depression

| | |
|---|---|
| • Couple specific | Healthy and adaptive coping skills for the changes parenthood brings<br>How to connect, communicate, and work as a team in the couple relationship<br>Self-care<br>Building secure attachment as a couple<br>Strengthening the couple relationship for the transition to parenthood<br>Stress management<br>Positive strategies to manage emotional triggers and reactions during pregnancy and post birth<br>Daily reality of pregnancy and parenting post birth<br>How to process trauma and emotion from any past pregnancy/birth losses |
| *Ways to maintain level of engagement and involvement of parents in PPN parenting programs* | |
| • Design related | Individualise and personalise program to focus on needs of each couple<br>Sessions to be experiential, interactive, and include discussions<br>Opportunities to *learn by doing* with activities, props, 'live demos' and tasks (e.g., nappies/diapers, dolls)<br>Include practice and reflective activities to do at home between sessions<br>Provide a schedule of topics that will be covered up front<br>Start each session with a debrief of between-session experiences<br>Incorporate frequent breaks |
| • Content related | Content that focusses on the *why* not the mechanics of birth<br>Content that focusses on health and wellbeing of baby<br>Include skills that can be used in daily life<br>Fears and hopes of parents<br>Include 'real life' stories (e.g., video, guest parent speakers)<br>Keep content relevant, simple, accurate, and practical<br>Content to be relevant to both parents and on how to work as a team/partnership<br>Hospital tour |
| • Environment related | Creating a supportive, social and community oriented environment |

| | |
|---|---|
| | Make sessions interactive between couples<br>Make sessions fun, interesting, and entertaining |
| • Facilitator related | Provide feedback from skill practice sessions to enable growth<br>Judgement-free<br>Seek topics from group before starting and include them throughout<br>Be engaging, enthusiastic, confident and interested in content<br>Be emotionally connected<br>Treat participants as adults<br>Ask for feedback and incorporate changes based on it |
| *Barriers to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers* | |
| | Work schedule<br>General lack of understanding of the importance of the role of the father in child care<br>Perception that pregnancy and birthing is mum's role |
| *Groups of parents who may benefit from having access to PPN parenting program*s | |
| | First-time parents<br>Pregnant teens<br>Single parents<br>Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges)<br>Same-sex couples<br>Any expecting parent who wants to attend<br>Parents wanting to have a home birth<br>Mothers having vaginal births after previous caesarean sections |

| | |
|---|---|
| *Who should attend PPN parenting program sessions* | |
| | Mum only |
| | Dad only |
| | Both mum and dad/partner |
| | Both mum and dad/partner with some sessions for dad/partner only |
| *Most effective stage of pregnancy to start PPN parenting programs* | |
| | Trimester two |
| | When the parent/s are ready |
| *Most effective delivery methods of content during PPN parenting programs* | |
| | Videos |
| | Experiential-base (e.g., practicing skills, modelling of skills, role-playing, parents sharing experiences, discussions) |
| | Home practice activities (to help parents consolidate learning) |
| | Individualised program where couples can select modules that apply to their unique circumstances |
| | A combination of standardised core modules along with the ability to select other modules that apply to your unique circumstances |
| | Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, printed resources, take home tasks) |
| | Inclusion of mingle time with refreshments where couples can get to know each other as part of the program |
| | Up-to-date resources available online |
| | Include question and discussion time to discuss couple relationship and family (not just mum and baby focus) |

| | |
|---|---|
| *Most effective location for delivery of PPN parenting programs* | |
| | In-person group sessions in a hospital setting |
| *Who ought to deliver PPN parenting programs* | |
| | Midwife |
| | Childbirth educator |
| | Nurse |
| | A collaboration between a range of qualified pregnancy and birth specialists |
| | Anyone who understands the father role in pregnancy and who can deliver material in a non-condescending way |
| | Anyone who is qualified and is caring, competent, non-judgmental and confident |
| | Anyone who is qualified and engaging, approachable and knowledgeable |
| *Most effective amount of time between each session* | |
| | Three months |
| | Five weeks |

# Appendix M

## BUHREC Approval Letter for Study 4—Application ID 15851

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

HUMAN RESEARCH ETHICS COMMITTEE
Bond University
Gold Coast, Queensland 4229
Australia
Ph: +61 7 5595 4194
Fax: +61 7 5595 1528
(from overseas)
Email: ethics@bond.edu.au

19 December 2016

Peta Stapleton
Faculty of Society and Design
Bond University

Dear Peta

| | |
|---|---|
| **Application ID:** | **15851** |
| **Project Title:** | **What factors are important for inclusion in a prenatal parenting intervention to maximise pre and post-birth bonding between mothers, fathers and baby: a prenatal and birth specialist perspective Delphi study** |
| **Researchers:** | **Peta Stapleton, Christine McKee** |

I am pleased to confirm that your project was reviewed by Bond University Human Research Ethics Committee and you have been granted approval to proceed.

The Committee requires, as a condition of approval, that all investigations be carried out in accordance with the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research* (2007). Approval is subject to conduct of the research in accordance with the requirements set out in the National Statement.

Approval is given subject to the protocol of the study being undertaken as described in your application, and approved amendments. As you may be aware the Ethics Committee is required to annually report on the progress of research it has approved. We would greatly appreciate if you could respond promptly and fully to the request for information on this project which will be distributed in March/April each year.

Under the terms of the National statement BUHREC has a role to monitor approved research projects and if necessary may withdraw approval. Conduct of unapproved research or deviation from the approved protocol may constitute academic misconduct and will be investigated in accordance with Section B of the *Australian Code for the Responsible Conduct of Research* (2007). Please refer to the Research Ethics website for more detail on Research Integrity and Bond University processes for dealing with instances of research misconduct.

You are reminded that the Principal Investigator must immediately report anything that might warrant review of ethical approval of the project. Should you have any queries or experience any problems, please contact us promptly.

We wish you well with your research project.

Yours sincerely

**Dr Mark Bahr**
**Chair Bond University Human Research Ethics Committee**

## Appendix N

### Birth Professional Delphi Study: Recruitment Advertisement for Study 4 Panellists Research Invitation

Pre- and Perinatal Education for the 21st Century: An expert consensus study

Researchers from Bond University are seeking the expert opinion of pre- and perinatal birth professionals with 5+ years of experience, by way of participation in a Delphi expert consensus study. We are asking participants to share their views on what modern day parents may need during the time of pregnancy, birth, and post birth, in terms of knowledge and support.

The main aim of the Delphi methodology study is to establish consensus around what factors are important for inclusion in a pre- and perinatal parenting programs to maximise pre and post birth bonding between mums and dads, as well as between mums, dads, and baby.

Participation in the study involves responding to three rounds of an online questionnaire (there is approximately six weeks between each round). The questionnaires in rounds 1 and 2 would take between 30 and 40 minutes, with round 3 taking no more than 20 minutes. Participation is completely confidential.

The intention is for all rounds to be completed by April 2017.

If you are interested in taking part, please contact the student researcher, Christine McKee for further information at christine.mckee@student.bond.edu.au.

Additionally, if you know anyone who may meet the criteria for inclusion and may be interested in participating, please feel free to share this invitation to participate. Your support is greatly appreciated.

Thanks for considering.

Warm wishes

Christine McKee (Student Researcher)
Dr Peta Stapleton (Chief Investigator)

## Appendix O

### Birth Professional Delphi Study: Email Sent to Responders to the Recruitment Invitation (Study 4)

Hi [*responder name*]

Thank you for your interest in the Delphi expert consensus study for my PhD. Your participation is greatly appreciated. Below is a summary of the study, what is involved, along with the link to start the first online questionnaire.

The main aims of this study are to establish consensus around:

(i) Factors that may impact the development of prenates in-utero and babies post birth; and
(ii) Factors that may be important for inclusion in modern day pre- and perinatal parenting programs to maximise pre and post birth bonding between mums and dads, as well as between mums, dads, and baby.

Your participation in the study would involve responding to three rounds of an online questionnaire (there is approximately six weeks between each round). The questionnaire in rounds 1 and 2 will take between 30 and 40 minutes, with round 3 taking up to 20 minutes. Upon completion of the three rounds, you will receive a $50 gift voucher as a token of thanks for your wonderful participation.

Your participation is completely confidential and your identity will not be shared at any point. If you are willing to participate, please visit the following link:

[*Qualtrics link*]

It would be appreciated if you would be able to please complete the round 1 questionnaire by *Monday 21 November, 2016*.

If you have any questions about the study, please reach out either by email at christine.mckee@student.bond.edu.au or you can call me on [*phone number*].

Thanks so much [*responder name*] – I am so grateful!

Warm wishes

Christine McKee (Student Researcher)
Dr Peta Stapleton (Chief Investigator)

## Appendix P

### Birth Professional Delphi Study: Qualtrics Explanatory Statement and Online Questionnaire for Round 1 (Study 4)

What factors are important for inclusion in pre- and perinatal parenting programs to maximise pre and post birth bonding between mothers, fathers and baby: A birth professional expert consensus study.

Whilst education through the pre- and perinatal period is not new, current research indicates that there are opportunities for more targeted topics, delivery methods and processes that take into account factors that may influence the development of prenates in-utero and influence who babies become post birth. Further, there is a distinct gap in providing interventions that emphasise: the importance of the couple relationship and the transition from being a partner to a parent; the inclusion of fathers from conception onwards; providing needs based coping strategies for this important time; and maximising secure bonding between the parents, as well as between parents and baby, throughout pregnancy and beyond.

You are therefore invited to participate in a Delphi expert consensus study exploring:

(i) Factors that may impact both the development of prenates during gestation and influence who babies become post birth,

(ii) The most important inclusions for a modern day prenatal parenting programs to maximise bonding and attachment between parents, and between parents and babies, both pre and postnatally.

This research is being conducted by Christine McKee, PhD Candidate at Bond University, Australia, under the supervision of Dr Peta Stapleton. Ethical approval (BUHREC Application ID: 15851) has been granted.

If you agree to participate, you will be asked to respond to a structured questionnaire over three rounds (where there is a gap of approximately six weeks between rounds). The questionnaires in rounds 1 and 2 will take no more than 30 to 40 minutes to complete, and in round 3, no more than 20 minutes.

During these rounds you will be asked to respond to both open-ended and closed questions, enabling you to express and explain your views and perspectives based on your expertise as a birth professional.

It is expected that the consensus rounds to be finished by April 2017, after which time you will receive a brief report of the results. As a token of thanks upon completion of the three rounds, you will receive a $50 online gift voucher.

For the purpose of the current study we have defined expertise as being currently certified/licences and active in one or more of the following fields for *at least five years*:

- OB/GYN
- Midwife
- Doula

- Registered Nurse (specialising in pregnancy/birth)
- Therapist, Marriage Family Therapist (MFT), psychologist, coach (with pre- and perinatal expertise and/or working with couples or families)
- Childbirth educator

It is important to note your participation in this expert panel will be completely confidential. Whilst your identity will be known to the panel director (Christine McKee), other panellists will have no knowledge of your identity. Anonymity is vital for true consensus to be reached, free from bias and the influence of peers.

Your responses will also remain completely confidential following the conclusion of the study. Data will be stored in a secure location at Bond University for a period of five years in accordance with the guidelines outlined by the Bond University Human Research Ethics Committee. Your participation is voluntary and you can withdraw from the study at any time.

Whilst it is not anticipated that you will experience any adverse effects from answering the questions, if you do experience distress from participation in this research, please contact the following services:

**Australia**: Parents Helplines and Hot lines available by State - *www.raisingchildren.net.au/articles/hotlines.html*

**USA**: www.nationalparenthelpline.org or Phone Toll Free: 1-855-427-2736

**UK**: Parenting Helplines and Advice on Parenting – Phone Toll Free: 0800-800-2222 or visit http://www.familylives.org.uk/

**Other World Regions**: http://www.thefamilyconservancy.org/parenting-resources-information

Should you have any complaints concerning the manner in which this research project is conducted, please do not hesitate to contact the Bond University Research Ethics Committee:

Bond University Human Research Ethics Committee Bond University Office of Research Services Bond University, Gold Coast, 4229 Australia Tel: +61 7 5595 4194
Fax: +61 7 5595 1120
Email: ethics@bond.edu.au

To assist with recruitment, if you know of others who may meet the criteria and would be suitable for this study, please share this link.

We thank you for taking the time to assist us with this research.

Warmly

Christine McKee – Student Researcher
Dr Peta Stapleton - Chief Investigator

By typing '*yes'* in the box below, I agree to participate in the expert consensus study to determine factors that are important for inclusion in pre- and perinatal parenting programs to maximise pre and post birth bonding between mums and dads, and between mums, dads, and baby. *If no, please cease this survey*.

Please note, should you need to complete the questionnaire in more than one sitting, you will need to use the same computer and the same browser for this to be possible.

**Round One Procedure**

This survey is structured to firstly seek basic demographic information. Then you will be asked to respond to the questions that form part of the study, based on your own experience and opinions.

It would be appreciated if you could respond to this first round by November 21, 2016. Feedback will follow in early January 2017, and round 2 will occur.

Please do not hesitate to contact me via email at christine.mckee@student.bond.edu.au if you have any queries.

**Demographic Questions**

1. What is your full name? (this is required for the subsequent rounds of the study and will not be shared with anyone)

2. What is your email address? (this is required for the subsequent rounds of the study and will not be shared with anyone)

3. What is your age? (in years)

4. What is your gender?

   **Male**
   **Female**
   **Other: please specify**

5. What is your ethnicity?

6. What country do you live in?

7. What is your marital status?

   **Living with partner**
   **Married**
   **Divorced**
   **Separated**
   **Widowed**
   **Other: please specify**

8. How many children do you have?

**0**
**1**
**2**
**3**
**4+**

9. How old are each of your children? (in years)

10. What is the highest level of education you have completed?

    **High school or equivalent**
    **Technical/Vocational College**
    **Bachelor's degree**
    **Master's degree**
    **Doctoral degree**
    **Other: please specify**

11. Please indicate which of the following roles you fulfil (you can select more than one).

    **OB/GYN**
    **Midwife**
    **Doula**
    **RN (specialising in pregnancy and birth)**
    **Therapist/MFT/Psychologist/Coach with pre- and perinatal and/or you work with couples or families**
    **Childbirth educator**

12. Please indicate the total numbers of years active in your specified role. If you have multiple roles, please identify years active for each.

13. What is your primary occupation or title?

14. Do you currently facilitate prenatal education courses or classes?

    **Yes**
    **No**

**Round 1 Questions - PART A**

15. What factors do you believe may impact both the development of prenates during gestation and influence who babies become post birth?

    In your answer, please consider development in the contexts of: physical (including genetics), psychological, emotional, and neurological/cognitive.

16. When considering factors that may impact both the development of prenates during gestation and influence who babies become post birth, for each of the following, please indicate your level of agreement:

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Maternal diet**
**Nutritional Supplements (e.g., folic acid)**
**Substances (e.g., alcohol, nicotine, pesticides)**
**DNA**
**Mother-prenate relationship in the womb (e.g., degree of pregnancy being wanted, level of interaction)**
**Father-prenate relationship in the womb (e.g., degree of pregnancy being wanted, level of interaction)**
**Life stress experienced by the expecting parents at time of conception and during the pregnancy**
**Age of mother**
**Level of physical activity for general health of mum during the pregnancy**
**Maternal and paternal family history of health issues and diseases**
**Maternal stress, anxiety and/or depression**
**Paternal stress, anxiety and/or depression**
**Mother's and father's/partner's perceptions (thoughts, attitudes, feelings, beliefs; both positive or negative) of each other, events, and environment experienced during pregnancy**
**Quality of relationship between the expecting couple at time of conception and during the pregnancy**
**Maternal abuse (mental, physical, emotional)**
**General health of mother at time of conception and during the pregnancy (e.g., weight, blood pressure)**

17. If you have any comments on any additional factors that you believe might impact both the development of prenates during gestation and influence who babies become post birth, please list these below so they can be added to round 2 considerations.

**Round 1 Questions - PART B**

18. What content do you think is most effective regarding the needs of expecting parents when considering pre- and perinatal parenting programs?

19. Please identify which of the following content you believe would be most effective regarding the needs of expecting parents during pregnancy, when considering pre- and perinatal parenting programs. Please check *all* that apply.

**Healthy and adaptive coping skills for the changes parenthood brings**
**Education on natural and drug free births**
**How to ask for the birth you want in a hospital setting**
**How to soothe baby**
**Sleep training**
**General bonding and attachment skills**
**Ways the father/partner can bond with baby during pregnancy and post birth**
**Skills for couple connection, communication and working together**
**Social support training and how to ask for support**
**Education on developmental milestones in the womb**
**Ways a baby's growth and persona is influenced during pregnancy**

**Birthing options**
**Pregnancy health**
**Preparation for labour and birth**
**Breastfeeding**
**How to influence gene expression of the baby in-utero**
**Skills for building secure attachment between the couple**
**Being aware of generational parenting patterns**
**Education on conscious awareness of baby in-utero**
**Mindfulness skills for pregnancy, labour, birth and post birth**
**Intentional communication with baby during pregnancy**
**Strengthening the couple relationship for the transition to parenthood (e.g., communication, role identity, maintaining intimacy, getting needs met, conflict resolution, how to emotionally support each other, create, maintain and sustain connection)**
**Ways to include dads/partners from conception onwards**
**Role identity through the transition to parenthood**
**Self-care**
**Other: please specify**

20. What content do you think is ineffective regarding the needs of expecting parents when considering pre- and perinatal parenting programs? (e.g., in the past parents have reported "immunisation", "focus on drug options", and invasive procedures" as not being useful).

21. To ensure new pre- and perinatal parenting programs are relevant and up-to-date, what current practices and/or theories that relate to conception, pregnancy, birth, and post birth do you believe would be of value to educate pregnant couples on?

For *each* of the questions below, please share your beliefs and opinions in the context of pre- and perinatal parenting programs.

22. What stage of the pregnancy do you believe is the most effective time for parents to start in pre- and perinatal parenting programs? Why?

23. What do you believe is the most effective time for pre- and perinatal parenting programs to end? Why?

**Before birth**
**Within three months post birth**
**Within three to six months post birth**
**Within six to twelve months post birth**
**Other: please specify**

24. What do you believe is the most effective platform for delivery of pre- and perinatal parenting programs? Please check *all* that apply.

**In-person group sessions in a hospital setting**
**In-person group sessions in a training room environment**
**In-person couple sessions in a hospital setting**
**In-person couple sessions in a training room environment**

**Self-guided learning from home (e.g., with downloadable videos, worksheets, manual)**
**'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions)**
**'Live' webinar sessions that are not interactive (where a parent can listen 'live' to sessions, but cannot actively contribute)**
**Sessions delivered via home visits**
**Sessions delivered in the workplace**
**Sessions delivered in the community centres**
**Sessions delivered via phone, Skype, Zoom (or other similar platforms)**
**Other: please specify**

25. How do you believe information in pre- and perinatal parenting programs can most effectively be presented/delivered? Please check *all* that apply.

**Lecture style**
**Use of video**
**Manual/workbook**
**Experiential (e.g., practicing skills, modelling of skills, role-playing, parents sharing experiences, discussions)**
**Home practice activities included to consolidate learning**
**Standardised one-size-fits-all**
**Individualised program where couples can select modules that apply to their unique circumstances**
**A combination of standardised core modules along with the ability to select other modules that applies to your unique circumstances**
**Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, take-home tasks)**
**Other: please specify**

26. Who do you believe should attend pre- and perinatal parenting programs? Please check *all* that apply.

**Mum only**
**Dad/partner only**
**Both mum and dad/partner**
**Both mum and dad/partner with some sessions for dad/partner only**
**Both mum and dad/partner with some sessions for mum only**

27. Research shows that fathers/partners attend less pregnancy and parenting related sessions/programs than expecting mothers. In your opinion, what factors would contribute to that being true?

28. Which groups of parents do you believe may benefit from having access to pre- and perinatal parenting programs? Please check *all* that apply.

**First-time parents**
**Existing parents who are pregnant again**
**Pregnant teens**
**Single parents**

**Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges)**
**Same-sex couples**
**Other: please specify**

29. What do you believe is the most effective length of each session in pre- and perinatal parenting programs? Why?

30. In your opinion, what is the most effective amount of time between each session? Why?

31. What do you believe is the most effective overall length of pre- and perinatal parenting programs in time (e.g., number of weeks or months)? Why?

32. In your opinion who ought to deliver pre- and perinatal parenting programs? Please check *all* that apply.

    **OB/GYN**
    **Midwife**
    **Doula**
    **Childbirth educator**
    **Nurse**
    **Psychologist, social worker, therapist, counsellor, coach**
    **Academic researchers**
    **Parents**
    **Elders from the community**
    **Other: please specify**

33. What other considerations (if any) do you believe are important for pre- and perinatal parenting programs to be effective?

34. If you have any additional comments regarding round 1 or if there are other questions related to the topic that you believe are important to present to the panel, please list these below so they can be added to round 2 considerations.

You have successfully completed round 1. If you have any questions, please contact me at christine.mckee@student.bond.edu.au.

The round 2 questionnaire (including round 1 feedback) will be sent in the next month.

Thank you so much. Your support in this study is greatly appreciated!

Warm wishes

Christine McKee (Student Researcher)
Dr Peta Stapleton (Chief Investigator)

## Appendix Q

### Birth Professional Delphi Study: Qualtrics Online Questionnaire for Round 2 (Study 4)

Welcome to Round 2.

What factors are important for inclusion in a pre- and perinatal parenting programs to maximise pre and post birth bonding between mothers, fathers, and baby: A birth professional perspective consensus study.

Firstly, I would like to thank you so much for your wonderful contribution to round 1 of this study. Collectively as an expert panel, a vast array of information was shared and collated to form round 2.

The intent of round 2 is to have you rate your level of agreement for statements that relate to each of the questions you responded to in round 1.

In round 1 there was one question where you were asked to rate your level of agreement with a series of statements. The results from this question are presented at the beginning of this survey.

The purpose of a Delphi expert consensus study is to determine consensus from the collective expert panel involved in the study, on each of the topics presented in the questions in round 1. Consensus is deemed to have been reached when 75% or more of the panel *strongly agree/agree* on an individual item or *strongly disagree/disagree* on an individual item. Only items that do not reach consensus will then form part of the third and final round. If consensus is not reached on all items by the end of round 3, this will be discussed in the dissertation write up.

It is anticipated that this round (round 2) will take no more than 30 to 40 minutes to complete, and in round 3, no more than 20 minutes.

It is important to note your participation in this expert panel will be completely confidential. Whilst your identity is known to the panel director (Christine McKee), other panellists will have no knowledge of your identity. Anonymity is vital for true consensus to be reached, free from bias and the influence of peers.

Your responses will also remain completely confidential following the conclusion of the study. Data will be stored in a secure location at Bond University for a period of five years in accordance with the guidelines outlined by the Bond University Human Research Ethics Committee. Your participation is voluntary and you can withdraw from the study at any time.

Whilst it is not anticipated that you will experience any adverse effects from answering the questions, if you do experience distress from participation in this research, please contact the following services:

**Australia**: Parents Helplines and Hot lines available by State - *www.raisingchildren.net.au/articles/hotlines.html*

**USA**: www.nationalparenthelpline.org or Phone Toll Free: 1-855-427-2736

**UK**: Parenting Helplines and Advice on Parenting – Phone Toll Free: 0800-800-2222 or visit http://www.familylives.org.uk/

**Other World Regions**: http://www.thefamilyconservancy.org/parenting-resources-information

Should you have any complaints concerning the manner in which this research project is conducted, please do not hesitate to contact the Bond University Research Ethics Committee:

Bond University Human Research Ethics Committee Bond University Office of Research Services Bond University, Gold Coast, 4229 Australia Tel: +61 7 5595 4194
Fax: +61 7 5595 1120
Email: ethics@bond.edu.au

Thank you for taking the time to complete round 2. Your contribution to this important research is so valuable and appreciated.

Warmly

Christine McKee - PhD Candidate
Dr Peta Stapleton - Chief Investigator

1. What is your full name? (this is required for the subsequent rounds of the study and will not be shared with anyone)

2. What is your email address? (this is required for the subsequent rounds of the study and will not be shared with anyone)

**Outcomes from round 1**

Consensus in the expert panel is determined when at least 75% of the panel members *strongly agree/agree* on an item. The table below displays an overview of results from the question in round 1 where you were asked to rate your level of agreement on items.

**Consensus was reached on 15 out of 16 statements. For the one statement where consensus was not reached, it has been included again in round 2.**

**Table with round 1 results** (see Table 36, p. 265)

Whilst we recommend completing the questionnaire in one sitting if possible—for ease of staying with the flow between the topic areas—should you need to complete the questionnaire in more than one sitting, you will need to use the same computer and the same browser, for this to be possible.

**Round 2 Procedure**

As a collective group of experts, a large amount of valuable, relevant and important information was shared in round 1. Responses to each question have been converted to statements and you will now be asked to respond with your level of agreement to each statement.

The number of statements per question varies—some have just a few and others have more.

So get yourself a delicious coffee, tea or whatever you enjoy, settle in and enjoy as you make your way through each statement. It is anticipated it will take you no more than 30 to 40 minutes in total to complete.

It would be appreciated if you could please complete your responses by *January 8, 2017*. Feedback will follow in February 2017, and the final round (round 3) will occur.

Please do not hesitate to contact me via email at christine.mckee@student.bond.edu.au if you have any queries.

3. In round 1 we asked: 'What factors do you perceive may impact both the development of prenates during gestation and influence who babies become post birth?'

   The list below represents the main themes. Please indicate your level of agreement for each item.

   *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

   **General health of the father at time of conception**
   **Social support available to mum during the pregnancy and beyond**
   **Social support available to the dad during the pregnancy and beyond**
   **Maternal/paternal perception of their ability to be a 'good enough' parent**
   **Epigenetics (e.g., stress and trauma imprinting passed down through the generations and influencing the prenate's genes being turned 'on' or 'off' in response to the imprint)**
   **Unprocessed attachment and relational trauma of the mum**
   **Mum's ability to self-regulate her nervous system to a calm and restful state consistently each day during the pregnancy**
   **Age of mother**
   **Dad's ability to self-regulate his nervous system to a calm and restful state consistently each day during the pregnancy**
   **Mum's perception of her ability to grow, birth, and parent her baby**
   **Ultrasound exposure**
   **Ability for mum and dad to engage with each other and with the baby from a place of secure attachment during the pregnancy and beyond**
   **Sibling attitude about the pregnancy**
   **Quality of the birthing experience for mum, dad, and baby**
   **The level of conscious connection created intentionally between both parents and baby in-utero and post birth**

**Mum and dad's ability to heal unresolved issues from their own womb, birth and childhood experiences, how they were parented, and from any previous pregnancy losses**
**The prenate's gender not being wanted by one or both of the parents**
**Love being expressed to the prenate from conception onwards**
**Mum and dad differentiating any negative/challenging thoughts, feelings and experiences during the pregnancy from the prenate (and baby post birth) using coherent dialog directed towards the baby**
**Preconception dynamics between mum and dad**
**Mum's level of self-care during pregnancy and post birth**
**IVF process to conceive**
**Unprocessed trauma of mum and/or dad relating specifically to sexual abuse**
**Unprocessed attachment and relational trauma of the dad**

4. In round 1 we asked: 'To ensure new pre- and perinatal parenting programs are relevant and up-to-date, what current practices and/or theories that relate to conception, pregnancy, birth and post birth do you believe would be of value to educate pregnant couples on?'

   The list below represents the main themes. Please indicate your level of agreement for each item.

   *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

   **Emotional development of an unborn and neonate**
   **PPN psychology**
   **Infant mental health**
   **Postpartum maternal mood disorders**
   **Bonding and attachment theory**
   **Conscious conception**
   **Bonding through meditation**
   **Innate wisdom—a woman's intuitive knowing of how to mother during pregnancy and beyond and how to birth naturally**
   **Consciousness of unborn and neonate**
   **Epigenetics**
   **Informed choice for circumcision**
   **Sacred hour: skin-to-skin contact**
   **Midwifery model of care**
   **Conscious parenting**
   **Mindfulness for parenting**
   **Somatic Experiencing**
   **CBT for parenting**
   **Affect regulation**
   **Natural birth practices**
   **Prenatal and birth imprints handed down from mother to baby**
   **Social nervous system (as part of Porge's Polyvagal Theory)**
   **Self-regulation for mum, dad and baby**
   **Neuroscience - in context of the developing prenate and neonate**
   **Trauma imprinting**
   **Delayed cord clamping**

5. In round 1 we asked: ‘What content do you think is most effective regarding the needs of expecting parents when considering pre- and perinatal parenting programs?'

*This question has the most statements in the entire survey, so once you have completed this one it is short and sweet moving forward!*

Please identify which of the following content items you believe would be most effective regarding the needs of expecting parents when considering pre- and perinatal parenting programs.

The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Healthy and adaptive coping skills for the changes parenthood brings**
**Education on natural and drug free births**
**How to ask for the birth you want in a hospital setting**
**How to soothe baby**
**Sleep training**
**General bonding and attachment skills**
**Ways the father/partner can bond with baby during pregnancy and post birth**
**Skills for couple connection, communication, and working together**
**Social support training and how to ask for support**
**Education on developmental milestones in the womb**
**Ways a baby’s growth and persona is influenced during pregnancy**
**Birthing options**
**Pregnancy health**
**Preparation for labour and childbirth**
**Breastfeeding**
**How to influence gene expression of the baby in-utero**
**Skills for building secure attachment between the couple**
**Being aware of generational parenting patterns**
**Education on conscious awareness of baby in-utero**
**Mindfulness skills for pregnancy, labour, birth and post birth**
**Intentional communication with baby during pregnancy**
**Strengthening the couple relationship for the transition to parenthood (e.g., communication, role identity, maintaining intimacy, getting needs met, conflict resolution, how to emotionally support each other, create, maintain, and sustain connection)**
**Ways to include dads/partners from conception onwards**
**Role identity through the transition to parenthood**
**Self-care**
**Non-judgemental education on factors that influence a prenate’s experience in the womb**
**Importance of minimising the use of interventions at birth and ways to achieve this**
**Stress management skills**
**Co-sleeping**

**Education on birth and care choices—how to say 'no' and stay empowered in a birthing environment**
**Importance of skin-to-skin contact post birth**
**Education on physiological and psychological development in the prenatal period**
**Understanding communication cues, reactions, and cries of baby post birth**
**Tools for expecting parents to heal their own birth trauma and early imprints**
**Education on parental impact on the developing nervous system of the baby both in-utero and post birth**
**How to overcome fears relating to pregnancy, birth, and being a parent**
**How to integrate siblings to the new family structure during pregnancy and post birth**
**Mindfulness skills for developing healthy and respectful relationships with self, partner, and baby**
**How to live the life you want post birth**
**Shared parenting skills**
**Importance of physical and emotional contact between both parents and baby in the perinatal period**
**Pregnancy, birth, and parenting as a spiritual experience**
**Differentiation parenting - intentional narrative between parent and prenate (and baby post birth) differentiating current adult experience and emotions from baby**
**Maternal and paternal perinatal mood disorders**
**Pregnancy and parenting resources available (in local community and evidence-based research)**
**Managing expectations of parenting (e.g., debunking perfectionism and education on being a 'good-enough parent')**
**Rights and choices as a parent regarding newborn procedures**
**Current population trends in pregnancy, birth, and post birth health**
**Birthing options**

6. In round 1 we asked: 'What content do you think is ineffective regarding the needs of expecting parents when considering pre- and perinatal parenting programs?'

   The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Any content area that has bias, judgement, and/or an agenda**
**Drug options for birth**
**Sleep training**
**Non-relevant birthing positions**
**Milestones that extend beyond three months post birth**
**Birth complications (factors that can go wrong during birth)**
**Content that is not contextualised for the father too**
**Content that is predominantly focussed on techniques, mechanics and technical information**
**Feelings of prenates**
**Content that focusses on one birth plan option only (regardless of option type)**

**Any content that disempowers either the mother or the baby**
**Any content that aligns with a specific product**
**Any topic that the facilitator is not sure is useful for parents**
**Any topic that the facilitator is not comfortable presenting**
**Immunisation**
**Circumcision**
**Content that emphasizes the medical model for birthing only**
**Influence of gene expression**
**Weekly milestones of fetal development**
**Caesarean section**
**Parenting philosophies**
**Any content areas that does not meet parents where they are at (i.e., in terms of beliefs and/or readiness to receive information)**
**Any content area that is not presented from an evidence base**
**When to take baby to the hospital/clinic/doctor post birth**

*You are doing great and are at the half way point. Thanks so much for your time, energy and focus!*

7. In round 1 we asked: 'Which groups of parents do you believe may benefit from having access to pre- and perinatal parenting programs?'

   The list below represents the main themes. Please indicate your level of agreement for each item.

   *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

   **First-time parents**
   **Existing parents who are pregnant again**
   **Pregnant teens**
   **Single parents**
   **Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges)**
   **Same-sex couples**
   **Parents with trauma history**
   **Parents expecting multiples**
   **Parents who are adopting**
   **Surrogacy parents (both birth mother and intended parents)**
   **All primary support people**
   **Existing parents who are pregnant again and who did not take classes with previous pregnancy/s**
   **Children from early school age through until end of school**
   **Non-parents: birth professionals and educators**

8. In round 1 we asked: 'Who do you believe should attend pre- and perinatal parenting programs?'

   The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Mum only**
**Dad/partner only**
**Both mum and dad/partner**
**Both mum and dad/partner with some sessions for dad/partner only**
**Both mum and dad/partner with some sessions for mum only**
**Siblings**
**Grandparents**
**Extended family members who will be caregivers to the baby once born**

9. In round 1 we asked: 'In your opinion, what factors would contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?'

The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Genuine work schedule clashes with class times**
**Lack of support from workplaces for fathers to takes time away from work to attend classes**
**Information in many prenatal classes being targeted towards mum and baby only with little direct content targeted to the role of father**
**Fathers not being invited/encouraged to attend classes by their partner, service providers, or both**
**Perception by fathers that it is not manly to attend**
**Societal and cultural norms that pregnancy is women's business**
**Lack of role identity by an expecting father**
**General lack of desire and an unwillingness to participate in classes by expecting fathers**
**Fathers feeling left out and as though they do not belong when they attend class**
**General lack of understanding of the importance of the role of the father in the wellbeing of the growing prenate**
**Fear of becoming a father, being judged, not fitting in, being in a group setting, and the potential of having to talk about emotions**
**Poor paternal leave policies (reducing motivation by fathers to engage in parenting preparation)**
**Lack of father-to-father mentoring in current programs**
**Lack of current programs being facilitated by men**
**Women feel comfortable talking to other women so need a women-only environment**
**Fathers do not directly experience the pregnancy, leading to less communication and connection with the baby in-utero which influences a perceived lack of need to attend classes**
**Cultural and societal norms where boys are not taught from a young age to become caring, supportive, self-responsible and empowered men and fathers**
**Males have a more natural confidence about parenting than do women and do not feel the need to attend**

10. In round 1 we asked: 'What stage of the pregnancy do you believe is most effective time for parents to start in pre- and perinatal parenting programs?'

    The list below represents the main themes. Please indicate your level of agreement for each item.

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **No set time—when the parent/s are ready and motivated to attend prenatal classes/education sessions**
    **Preconception**
    **As soon as the couple discover they are pregnant**
    **Trimester one**
    **Trimester two**
    **Trimester three**
    **After quickening (when mum perceives fetal movement)**
    **After first ultrasound**
    **Late teens/early adulthood—prior to any pregnancy**

11. In round 1 we asked: 'What do you believe is the most effective time for pre- and perinatal parenting programs to end?'

    The list below represents the main themes. Please indicate your level of agreement for each item.

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **Before birth**
    **Within three months post birth**
    **Within three to six months post birth**
    **Within six to 12 months post birth**
    **Three years post birth**

12. In round 1 we asked: 'How do you believe information in pre- and perinatal parenting programs can most effectively be presented/delivered?'

    The list below represents the main themes. Please indicate your level of agreement for each item.

    *Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

    **Lecture style**
    **Use of video**
    **Manual/workbook**
    **Experiential (e.g., practicing skills, modelling of skills, role playing, parents sharing experiences, discussions)**
    **Home practice activities included to consolidate learning**
    **Standardised one-size-fits-all programs**
    **Individualised program where couples can select modules that apply to their unique circumstances**

**A combination of standardised core modules along with the ability to select other modules that applies to your unique circumstances**
**Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, take-home tasks)**

13. In round 1 we asked: 'What do you believe is the most effective platform for delivery of pre- and perinatal parenting programs?

The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**In-person group sessions in a hospital setting**
**In-person group sessions in a training room environment**
**In-person couple sessions in a hospital setting**
**In-person couple sessions in a training room environment**
**Self-guided learning from home (e.g., with downloadable videos, worksheets, manual)**
**'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions)**
**'Live' webinar sessions that are not interactive (where a parent can listen 'live' to sessions, but cannot actively contribute)**
**Sessions delivered via home visits**
**Sessions delivered in the workplace**
**Sessions delivered in community centres**
**Sessions delivered via phone, Skype, Zoom (or other similar platforms)**
**In a parent-to-parent mentoring environment**

14. In round 1 we asked: 'In your opinion who ought to deliver pre- and perinatal parenting programs?'

The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**OB/GYN**
**Midwife**
**Doula**
**Childbirth educator**
**Nurse**
**Psychologist, social worker, therapist, counsellor, coach**
**Academic researchers**
**Parents**
**Elders from the community**
**Collaboration between psychologist, midwife, and childbirth educator**
**Collaboration of different community members from diverse backgrounds**
**Community outreach people**

**Anyone with skills to coach, offer support and encouragement, is culturally sensitive, and listens**
**Anyone who has passion for the material and can deliver in a good way**
**Any facilitator (regardless of credentials) who has the right attitude (e.g., positive, empowering, optimistic, open-minded)**
**Anyone who can be personal in their approach**

15. In round 1 we asked: 'What do you believe is the most effective length of each session in pre- and perinatal parenting programs?'

The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**45 minutes**
**One hour**
**1.5 hours**
**Two hours**
**2.5 hours**
**Three hours**
**Half day**
**Full day**
**No set-time—course specific**

16. In round 1 we asked: 'In your opinion, what is the most effective amount of time between each session?'

The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Between 1-5 days**
**Between 5-7 days**
**One week**
**Between 1-2 weeks**
**Two weeks**
**One week for sessions held in trimester one and then more spread out up until the end of the pregnancy**

17. In round 1 we asked: 'What do you believe is the most effective overall length of pre- and perinatal parenting programs in time (e.g. number of weeks or months)?'

The list below represents the main themes. Please indicate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Six weeks**

**Between 7–10 weeks**
**Eight weeks**
**12 weeks**
**16 weeks**
**No set time—it depends on the needs of the parents**
**From trimester one until birth**
**From trimester one until three months post birth**
**From trimester one until six months post birth**
**From 12 months preconception until post birth**
**Five weeks in trimester one and five weeks in trimester three**
**Six weeks spanning trimesters one and two, two weeks at end of trimester three and two weeks three months post birth**
**Six weeks every three months from trimester one until 12 months post birth**
**From trimester two until three months post birth**
**From trimester three until three months post birth**

If you have any additional comments regarding round 2, or if there are other questions related to the topic that you believe are important to present to the panel, please list these below so they can be added to round 3 considerations.

You have successfully completed round 2. If you have any questions, please contact me at christine.mckee@student.bond.edu.au.

The round 3 questionnaire (including round 2 results) will be sent in February 2017.

Thank you so much. Your support in this study is greatly appreciated!

Warm wishes

Christine McKee (Student Researcher)
Dr Peta Stapleton (Chief Investigator)

## Appendix R

### Birth Professionals Delphi Study: Qualtrics Online Questionnaire Round 3 (Study 4)

Welcome to Round 3.

What factors are important for inclusion in pre- and perinatal parenting programs to maximise pre and post birth bonding between mothers, fathers, and baby: A birth professional expert consensus study.

Thank you so much for your time, energy, and opinions that went into round 2.

The intent of this final round is to share the results from round 2 and then have you rate your level of agreement for statements that relate to each of the questions where consensus was *not* reached in round 2.

If consensus is not reached on all items by the end of round 3, this will be discussed in the dissertation write up.

It is anticipated that this final round will take no more than 20 minutes.

It is important to note your participation in this expert panel will be completely confidential. Whilst your identity is known to the panel director (Christine McKee), other panellists will have no knowledge of your identity. Anonymity is vital for true consensus to be reached, free from bias and the influence of peers.

Your responses will also remain completely confidential following the conclusion of the study. Data will be stored in a secure location at Bond University for a period of five years in accordance with the guidelines outlined by the Bond University Human Research Ethics Committee. Your participation is voluntary and you can withdraw from the study at any time.

Whilst it is not anticipated that you will experience any adverse effects from answering the questions, if you do experience distress from participation in this research, please contact the following services:

**Australia**: Parents Helplines and Hot lines available by State - *www.raisingchildren.net.au/articles/hotlines.html*

**USA**: www.nationalparenthelpline.org or Phone Toll Free: 1-855-427-2736

**UK**: Parenting Helplines and Advice on Parenting – Phone Toll Free: 0800-800-2222 or visit http://www.familylives.org.uk/

**Other World Regions**: http://www.thefamilyconservancy.org/parenting-resources-information

Should you have any complaints concerning the manner in which this research project is conducted, please do not hesitate to contact the Bond University Research Ethics Committee:

Bond University Human Research Ethics Committee Bond University Office of Research Services Bond University, Gold Coast, 4229 Australia Tel: +61 7 5595 4194
Fax: +61 7 5595 1120
Email: ethics@bond.edu.au

Thank you for taking the time to complete the third and final round. Your contribution to this important research is so valuable and appreciated.

Warmly

Christine McKee - PhD Candidate
Dr Peta Stapleton - Chief Investigator

1. What is your full name? (this will not be shared with anyone).

2. What is your email address? (this will not be shared with anyone).

Whilst we recommend completing the questionnaire in one sitting if possible, should you need to complete the questionnaire in more than one sitting you will need to use the same computer, and the same browser for this to be possible.

**Round 3 Procedure**

Each question has *two* parts:

The *first* is a summary of results from *all* responses to the question in round 2. The *second* part requires that you re-rate the statements in the question where consensus was not reached. It is anticipated to take no more than 20 minutes to complete this final round.

Please note that for each question consensus in the expert panel has been determined when at least 75% of the panel members *strongly agree/agree* or *strongly disagree*/*disagree* on an item.

The tables throughout display an overview of results from each question in round 2 where you were asked to rate your level of agreement on items.

**Part One: Results summary from round 2**

'Factors that may impact both the development of prenates during gestation and influence who babies become post birth' (refer to Table 37, p. 266).

**Consensus was reached on 21 out of 24 statements. For the three statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

3. 'What factors do you perceive may impact both the development of prenates during gestation and influence who babies become post birth?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Age of mother**
**Ultrasound exposure**
**Sibling attitude about the pregnancy**

**Part One: Results summary from round 2**

'Current practices and/or theories that relate to conception, pregnancy, birth, and post birth that would be of value to educate pregnant couples on to ensure new pre- and perinatal parenting programs are relevant and up-to-date' (refer to Table 40, p. 274).

**Consensus was reached on 19 out of 25 statements. For the six statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

4. 'To ensure new pre- and perinatal parenting programs are relevant and up-to-date, what current practices and/or theories that relate to conception, pregnancy, birth, and post birth that would be of value to educate pregnant couples on to ensure new pre- and perinatal parenting programs are relevant and up-to-date?"

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Conscious conception**
**Bonding through meditation**
**Somatic Experiencing**
**CBT for parenting**
**Prenatal and birth imprints handed down from mother to baby**
**Social nervous system (as part of Porge's Polyvagal Theory)**

**Part One: Results summary from round 2**

'Content that is most effective regarding the needs of expecting parents when considering pre- and perinatal parenting programs' (refer to Table 38, p. 268).

**Consensus was reached on 41 out of 48 statements. For the seven statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

5. 'What content do you think is most effective regarding the needs of expecting parents when considering pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Sleep training**
**Education on developmental milestones in the womb**
**How to influence gene expression of the baby in-utero**
**How to live the life you want post birth**
**Pregnancy, birth, and parenting as a spiritual experience**
**Differentiation parenting - intentional narrative between parent and prenate (and baby post birth) differentiating current adult experience and emotions from baby**
**Current population trends in pregnancy, birth, and post birth health**

**Part One: Results summary from round 2**

'Content that is ineffective regarding the needs of expecting parents when considering pre- and perinatal parenting programs' (refer to Table 39, p. 272).

**Consensus was reached on seven out of 24 statements. For the 17 statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

6. 'What content do you think is ineffective regarding the needs of expecting parents when considering pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

Please consider the *tip on how to respond* in the example below:

For example: if you *agree* that "immunisation" is not useful as content, then you would select either *strongly agree* or *agree*.

If however, you believe that immunisation would be useful content, then you would select either *strongly disagree* or *disagree*.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Drug options for birth**
**Sleep training**
**Non relevant birthing positions**
**Milestones that extend beyond three months post birth**
**Birth complications (factors that can go wrong during birth)**
**Content that is not contextualised for the father too**
**Content that is predominantly focussed on techniques, mechanics, and technical information**
**Feelings of prenates**

**Any topic that the facilitator is not sure is useful for parents**
**Any topic that the facilitator is not comfortable presenting**
**Immunisation**
**Influence of gene expression**
**Weekly milestones of a prenate's development**
**Parenting philosophies**
**Any content areas that does not meet parents where they are at (i.e., in terms of beliefs and/or readiness to receive information)**
**Any content area that is not presented from an evidence-base**
**When to take baby to the hospital/clinic/doctor post birth**

**Part One: Results summary from round 2**

7. 'Groups of parents who may benefit from having access to pre- and perinatal parenting programs' (refer to Table 41, p. 276).

**Consensus was reached on each of the 14 statements.**

**Part One: Results summary from round 2**

'Who should attend pre- and perinatal parenting programs?' (refer to Table 42, p. 276).

**Consensus was reached on five out of eight statements. For the three statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

8. Who do you believe should attend pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Both mum and dad/partner with some sessions for dad/partner only**
**Both mum and dad/partner with some sessions for mum only**
**Siblings**

**Part One: Results summary from round 2**

'Factors that would contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers' (refer to Table 43, p. 278).

**Consensus was reached on 15 out of 18 statements. For the three statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

9. 'In your opinion, what factors would contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Perceived general lack of desire and an unwillingness to participate in classes by expecting fathers**
**Women feel comfortable talking to other women so need a women-only environment**
**Fathers do not directly experience the pregnancy, leading to less communication and connection with the baby in-utero which influences a perceived lack of need to attend classes**

**Part One: Results summary from round 2**

'Stage of the pregnancy that is the most effective time for parents to start in pre- and perinatal parenting programs' (refer to Table 44, p. 280).

**Consensus was reached on three out of nine statements. For the six statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

10. 'What stage of the pregnancy do you believe is the most effective time for parents to start in pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**No set time—when the parent/s are ready and motivated to attend prenatal classes/education sessions**
**Preconception**
**Trimester two**
**Trimester three**
**After quickening (when mum perceives fetal movement)**
**After first ultrasound**

**Part One: Results summary from round 2**

'The most effective time for pre- and perinatal parenting programs to end' (refer to Table 45, p. 280).

**Consensus was reached on 0 out of five statements. As a result, all have been included again in round 3.**

**Part Two: Re-rate items**

11. 'What do you believe is the most effective time for pre- and perinatal parenting programs to end?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Before birth**
**Within three months post birth**
**Within three to six months post birth**
**Within six to 12 months post birth**
**Three years post birth**

**Part One: Results summary from round 2**

'How information in pre- and perinatal parenting programs can most effectively be presented/delivered' (refer to Table 46, p. 281)

**Consensus was reached on seven out of nine statements. For the two statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

12. 'How do you believe information in pre- and perinatal parenting programs can most effectively be presented/delivered?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Lecture style**
**Manual/workbook**

**Part One: Results summary from round 2**

'The most effective platform for delivery of pre- and perinatal parenting programs' (refer to Table 47, p. 282).

**Consensus was reached on four out of 12 statements. For the eight statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

13. 'What do you believe is the most effective platform for delivery of pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**In-person group sessions in a hospital setting**
**In-person couple sessions in a hospital setting**
**In-person couple sessions in a training room environment**
**Self-guided learning from home (e.g., with downloadable videos, worksheets, manual)**
**'Live' webinar sessions that are interactive (where a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions)**
**'Live' webinar sessions that are not interactive (where a parent can listen 'live' to sessions, but cannot actively contribute)**
**Sessions delivered in the workplace**
**Sessions delivered via phone, Skype, Zoom (or other similar platforms)**

**Part One: Results summary from round 2**

'Who ought to deliver pre- and perinatal parenting programs?' (refer to Table 48, p. 283).

**Consensus was reached on four out of 16 statements. For the eight statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

14. 'In your opinion who ought to deliver pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**OB/GYN**
**Doula**
**Nurse**
**Psychologist, social worker, therapist, counsellor, coach**
**Academic researchers**
**Elders from the community**
**Collaboration of different community members from diverse backgrounds**
**Community outreach people**
**Anyone with skills to coach, offer support and encouragement, is culturally sensitive and listens**
**Anyone who has passion for the material and can deliver in a good way**
**Any facilitator (regardless of credentials) who has the right attitude (e.g., positive, empowering, optimistic, open-minded)**
**Anyone who can be personal in their approach**
**Male nurses to deliver father-only sessions**

**Part One: Results summary from round 2**

'The most effective length of each session in pre- and perinatal parenting programs' (refer to Table 49, p. 284).

**Consensus was reached on 0 out of nine statements. As a result, all have been included again in round 3.**

**Part Two: Re-rate items**

15. 'What do you believe is the most effective length of each session in pre- and perinatal parenting programs?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**45 minutes**
**One hour**
**1.5 hours**
**Two hours**
**2.5 hours**
**Three hours**
**Half day**
**Full day**
**No set time—course specific**

**Part One: Results summary from round 2**

'The most effective amount of time between each session' (refer to Table 50, p. 285).

**Consensus was reached on one out of six statements. For the five statements where consensus was not reached, they have been included again in round 3.**

**Part Two: Re-rate items**

16. 'In your opinion, what is the most effective amount of time between each session?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Between 1-5 days**
**Between 5-7 days**
**Between 1-2 weeks**
**Two weeks**
**One week for sessions held in trimester one and then more spread out up until the end of the pregnancy**

**Part One: Results summary from round 2**

'The most effective overall length of pre- and perinatal parenting programs in time' (e.g., number of weeks or months) (refer to Table 51, p. 286).

**Consensus was reached on 0 out of 15 statements. As a result, all have been included again in round 3.**

**Part Two: Re-rate items**

17. 'What do you believe is the most effective overall length of pre- and perinatal parenting programs in time (e.g., number of weeks or months)?'

The items below have not reached consensus. Please re-rate your level of agreement for each item.

*Strongly Agree* *Agree* *Neutral* *Disagree* *Strongly Disagree*

**Six weeks**
**Between 7–10 weeks**
**Eight weeks**
**12 weeks**
**16 weeks**
**No set time—it depends on the needs of the parents**
**From trimester one until birth**
**From trimester one until three months post birth**
**From trimester one until six months post birth**
**From 12 months preconception until post birth**
**Five weeks in trimester one and five weeks in trimester three**
**Six weeks spanning trimesters one and two, two weeks at end of trimester three, and two weeks three months post birth**
**Six weeks every three months from trimester one until 12 months post birth**
**From trimester two until three months post birth**
**From trimester three until three months post birth**

You have successfully completed round 3, the final round of the study. It is anticipated that a link to the results from this round will be sent in March 2017.

I am so grateful for your participation throughout the entire study. Thank you so much!

If you have any questions, please contact me at christine.mckee@student.bond.edu.au.

Warm wishes

Christine McKee (Student Researcher)
Dr Peta Stapleton (Chief Investigator)

## Appendix S

### Birth Professional Delphi Study: Items by Question that Attained Consensus across Rounds 1 to 3 (Study 4)

| Question and Items | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| *Factors that may impact both development of prenates during gestation and influence who babies become post birth* | | | | |
| Maternal diet ** | 1.22 | 1.00 | 0.49 | 96.9 |
| Nutritional supplements ** | 1.72 | 2.00 | 0.77 | 81.3 |
| Substances (e.g., alcohol, nicotine, pesticides) ** | 1.13 | 1.00 | 0.34 | 100 |
| DNA ** | 1.47 | 1.00 | 0.57 | 96.9 |
| Mother-prenate relationship in the womb (e.g., degree of being wanted, interaction between mum and prenate throughout the pregnancy) ** | 1.19 | 1.00 | 0.47 | 96.9 |
| Father-prenate relationship in the womb (e.g., degree of being wanted, interaction between dad and prenate throughout the pregnancy) ** | 1.41 | 1.00 | 0.67 | 90.7 |
| Life stress experienced by mum and dad at time of conception and during the pregnancy ** | 1.19 | 1.00 | 0.40 | 100 |
| Level of physical activity for general health of mum during the pregnancy ** | 1.72 | 2.00 | 0.63 | 90.6 |
| Maternal stress, anxiety, and/or depression ** | 1.13 | 1.00 | 0.34 | 100 |
| Maternal and paternal family history of health issues and diseases ** | 1.66 | 2.00 | 0.70 | 87.5 |

| | | | | |
|---|---|---|---|---|
| Paternal stress, anxiety and/or depression ** | 1.41 | 1.00 | 0.56 | 96.9 |
| Mother's and father's perceptions (thoughts, attitudes, feelings, beliefs; both positive or negative) of each other, events and environment experienced during pregnancy ** | 1.19 | 1.00 | 0.47 | 96.9 |
| Quality of relationship between the mother and father at time of conception and during the pregnancy ** | 1.34 | 1.00 | 0.70 | 93.8 |
| Maternal abuse (mental, physical, emotional) ** | 1.09 | 1.00 | 0.30 | 100 |
| General health of mother at time of conception and during the pregnancy (e.g., weight, blood pressure) ** | 1.34 | 1.00 | 0.48 | 100 |
| General health of the father at time of conception | 2.09 | 2.00 | 0.90 | 87.0 |
| Social support available to the mother during pregnancy and beyond | 1.26 | 1.00 | 0.45 | 100 |
| Social support available to the dad during the pregnancy and beyond | 1.74 | 2.00 | 0.62 | 91.3 |
| Mother's and father's perception of ability to be a 'good enough' parent | 1.57 | 2.00 | 0.59 | 95.7 |
| Epigenetics (e.g., stress and trauma imprinting passed down through the generations and influencing the prenate's genes being turned 'on' or 'off' in response to the imprint) | 1.35 | 1.00 | 0.49 | 100 |
| Unprocessed attachment and relational trauma of the mum | 1.17 | 1.00 | 0.39 | 100 |

| | | | | |
|---|---|---|---|---|
| Mum's ability to self-regulate her nervous system to a calm and restful state consistently each day during the pregnancy | 1.26 | 1.00 | 0.45 | 100 |
| Dad's ability to self-regulate his nervous system to a calm and restful state consistently each day during the pregnancy | 1.96 | 2.00 | 0.83 | 78.3 |
| Mum's perception of her ability to grow, birth, and parent her baby | 1.35 | 1.00 | 0.49 | 100 |
| Ability for mum and dad to engage with each other and with the baby from a place of secure attachment during the pregnancy and beyond | 1.30 | 1.00 | 0.47 | 100 |
| Quality of the birthing experience for mum, dad, and baby | 1.48 | 1.00 | 0.79 | 91.3 |
| The level of conscious connection created intentionally between both parents and baby in-utero and post birth | 1.30 | 1.00 | 0.56 | 95.7 |
| Mum's and dad's ability to heal unresolved issues from their own womb, birth, and childhood experiences; how they were parented; and from any previous pregnancy losses | 1.30 | 1.00 | 0.77 | 91.3 |
| Whether the prenate's gender is wanted by one or both of the parents | 1.65 | 1.00 | 0.78 | 82.6 |
| Love being expressed to the prenate from conception onwards | 1.30 | 1.00 | 0.47 | 100 |
| Mum and dad differentiating any negative/challenging thoughts, feelings, and experiences during the pregnancy from the prenate | | | | |

| | | | | |
|---|---|---|---|---|
| (and baby post birth) using coherent dialogue directed towards the baby | 1.65 | 1.00 | 0.94 | 91.3 |
| Preconception dynamics between mum and dad | 1.78 | 2.00 | 0.95 | 82.6 |
| Mum's level of self-care during pregnancy and post birth | 1.13 | 1.00 | 0.34 | 100 |
| IVF process to conceive | 1.91 | 2.00 | 0.99 | 78.3 |
| Unprocessed trauma of mum and/or dad relating specifically to sexual abuse | 1.39 | 1.00 | 0.50 | 100 |
| Unprocessed attachment and relational trauma of the dad | 1.70 | 1.00 | 0.88 | 82.6 |
| Sibling attitude about the pregnancy | 2.35 | 2.00 | 0.99 | 75.0 |
| *Content perceived to be most effective regarding needs of expecting parents when considering PPN parenting programs* | | | | |
| Healthy and adaptive coping skills for the changes parenthood brings ** | 1.17 | 1.00 | 0.39 | 100 |
| Education on natural and drug free births ** | 1.52 | 1.00 | 0.79 | 82.6 |
| How to ask for the birth you want in a hospital setting ** | 1.22 | 1.00 | 0.52 | 95.7 |
| How to soothe baby ** | 1.22 | 1.00 | 0.42 | 100 |
| General bonding and attachment skills ** | 1.17 | 1.00 | 0.39 | 100 |
| Ways the father can bond with baby during pregnancy and post birth ** | 1.09 | 1.00 | 0.29 | 100 |
| Skills for couple connection, communication, and working together ** | 1.13 | 1.00 | 0.34 | 100 |

| | | | | |
|---|---|---|---|---|
| Social support training and how to ask for support ** | 1.17 | 1.00 | 0.39 | 100 |
| Ways a baby's growth and persona is influenced during pregnancy ** | 1.61 | 1.00 | 1.03 | 82.6 |
| Birthing options ** | 1.22 | 1.00 | 0.42 | 100 |
| Pregnancy health ** | 1.26 | 1.00 | 0.45 | 100 |
| Preparation for labour and childbirth ** | 1.22 | 1.00 | 0.42 | 100 |
| Breastfeeding ** | 1.39 | 1.00 | 0.58 | 95.7 |
| Skills for building secure attachment between the couple ** | 1.35 | 1.00 | 0.49 | 100 |
| Being aware of generational parenting patterns ** | 1.35 | 1.00 | 0.57 | 95.7 |
| Education on conscious awareness of baby in-utero ** | 1.30 | 1.00 | 0.56 | 95.7 |
| Mindfulness skills for pregnancy, labour, birth, and post birth ** | 1.35 | 1.00 | 0.49 | 100 |
| Intentional communication to babies during pregnancy ** | 1.22 | 1.00 | 0.52 | 95.7 |
| Strengthening the couple relationship for the transition to parenthood (e.g., communication, role identity, maintaining intimacy, getting needs met, conflict resolution, how to emotionally support each other, create, maintain, and sustain connection) ** | 1.09 | 1.00 | 0.29 | 100 |
| Ways to include dad/partner from conception onwards ** | 1.13 | 1.00 | 0.34 | 100 |
| Role identity through the transition to parenthood ** | 1.35 | 1.00 | 0.49 | 100 |
| Self-care ** | 1.13 | 1.00 | 0.34 | 100 |

| | | | | |
|---|---|---|---|---|
| (Non-judgmental) education on factors that influence a prenate's experience in the womb | 1.52 | 1.00 | 0.95 | 91.3 |
| Importance of minimising the use of interventions at birth (and ways to achieve this) | 1.61 | 1.00 | 0.78 | 82.6 |
| Stress management skills | 1.22 | 1.00 | 0.52 | 95.7 |
| Co-sleeping | 1.65 | 1.00 | 0.83 | 78.3 |
| Education on birth and care choices - how to say 'no' and stay empowered in a birthing environment | 1.39 | 1.00 | 0.72 | 95.7 |
| Importance of skin-to-skin contact post birth | 1.09 | 1.00 | 0.29 | 100 |
| Education on physiological and psychological development in the prenatal period | 1.57 | 1.00 | 0.66 | 91.3 |
| Understanding communication cues, reactions, and cries of baby post birth | 1.22 | 1.00 | 0.42 | 100 |
| Tools for expecting parents to heal their own birth trauma and early imprints | 1.65 | 1.00 | 1.03 | 91.3 |
| Education on parental impact on the developing nervous system of the baby both in-utero and post birth | 1.39 | 1.00 | 0.78 | 82.6 |
| How to overcome fears relating to pregnancy, birth, and being a parent | 1.09 | 1.00 | 0.29 | 100 |
| How to integrate siblings to the new family structure during pregnancy and post birth | 1.26 | 1.00 | 0.45 | 100 |
| Mindfulness skills for developing healthy and respectful relationships with self, partner, and baby | 1.30 | 1.00 | 0.47 | 100 |

| | | | | |
|---|---|---|---|---|
| Shared parenting skills | 1.52 | 1.00 | 0.67 | 91.3 |
| Importance of physical and emotional contact between both parents and baby in the perinatal period | 1.30 | 1.00 | 0.47 | 100 |
| Maternal and paternal perinatal mood disorders | 1.48 | 1.00 | 0.85 | 87.0 |
| Pregnancy and parenting resources available (in local community and evidence-based research) | 1.17 | 1.00 | 0.49 | 95.7 |
| Managing expectations of parenting (e.g., debunking perfectionism and education on 'good-enough' parent) | 1.26 | 1.00 | 0.54 | 95.7 |
| Rights and choices as a parent regarding newborn procedures | 1.26 | 1.00 | 0.54 | 95.7 |
| Education on developmental milestones in the womb ** | 1.90 | 2.00 | 0.85 | 80.0 |
| How to live the life you want post birth | 2.10 | 2.00 | 0.97 | 75.0 |
| Differentiation parenting; intentional narrative between parent and prenate (and baby post birth), differentiating current adult experience and emotions from baby | 2.10 | 2.00 | 1.07 | 75.0 |
| *Content perceived to be ineffective regarding needs of expecting parents when considering PPN parenting programs* | | | | |
| Any content area that has bias, judgement, and/or an agenda | 1.39 | 1.00 | 0.66 | 91.3 |
| Content that focusses on one birth plan option only (regardless of option type) | 1.61 | 1.00 | 0.94 | 87.0 |

| | | | | |
|---|---|---|---|---|
| Any content that disempowers either the mother or the baby | 1.35 | 1.00 | 1.03 | 91.3 |
| Any content that aligns with a specific product | 1.70 | 1.00 | 1.02 | 78.3 |
| Circumcision | 4.17 | 4.00 | 0.98 | 78.3 (Disagree) |
| Content that emphasises the medical model for birthing only | 1.57 | 1.00 | 0.79 | 91.3 |
| Caesarean section | 4.04 | 4.00 | 0.88 | 82.6 (Disagree) |
| Birth complications (factors that can go wrong during birth) | 3.70 | 4.00 | 1.26 | 75.0 (Disagree) |
| Weekly milestones of fetal development | 3.70 | 4.00 | 1.03 | 75.0 (Disagree) |
| When to take baby to the hospital/clinic/doctor post birth | 3.60 | 4.00 | 1.19 | 75.0 (Disagree) |
| *Current practices and/or theories that relate to conception, pregnancy, birth, and post birth that would be of value to educate pregnant couples on* | | | | |
| Emotional development of an prenate and neonate | 1.61 | 1.00 | 0.72 | 87.0 |
| PPN psychology | 1.48 | 1.00 | 0.79 | 91.3 |
| Infant mental health | 1.70 | 2.00 | 0.82 | 87.0 |
| Post-partum maternal mood disorders | 1.30 | 1.00 | 0.56 | 95.7 |
| Bonding and attachment theory | 1.22 | 1.00 | 0.56 | 95.7 |
| Innate wisdom, a woman's intuitive knowing of how to mother during pregnancy and beyond and how to birth naturally | 1.78 | 2.00 | 0.91 | 82.6 |
| Consciousness of unborn and neonate | 1.30 | 1.00 | 0.56 | 95.7 |

| | | | | |
|---|---|---|---|---|
| Epigenetics | 1.57 | 1.00 | 0.73 | 87.0 |
| Informed choice for circumcision | 1.48 | 1.00 | 0.79 | 91.3 |
| Sacred hour: skin-to-skin contact | 1.04 | 1.00 | 0.21 | 100 |
| Midwifery model of care | 1.39 | 1.00 | 0.58 | 95.7 |
| Conscious parenting | 1.35 | 1.00 | 0.71 | 95.7 |
| Mindfulness for parenting | 1.48 | 1.00 | 0.73 | 95.7 |
| Affect regulation | 1.65 | 2.00 | 0.71 | 87.0 |
| Natural birth practices | 1.52 | 1.00 | 0.73 | 87.0 |
| Self-regulation for mum, dad, and baby | 1.39 | 1.00 | 0.58 | 95.7 |
| Neuroscience in context of the developing prenate and neonate | 1.61 | 1.00 | 0.78 | 91.3 |
| Trauma imprinting | 1.70 | 1.00 | 0.88 | 82.6 |
| Delayed cord clamping | 1.35 | 1.00 | 0.71 | 95.7 |
| Prenatal and birth imprints handed down from mother to baby | 1.80 | 2.00 | 0.70 | 85.0 |
| *Factors that may contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers* | | | | |
| Genuine work schedule clashes with class times | 2.00 | 2.00 | 0.91 | 87.0 |
| Lack of support from workplaces for fathers to take time away from work to attend classes | 1.39 | 1.00 | 0.50 | 100 |
| Information in many prenatal classes are targeted towards mum and baby only with little direct content targeted to the | | | | |

| | | | | |
|---|---|---|---|---|
| role of father | 1.83 | 2.00 | 0.89 | 91.3 |
| Fathers not being invited/encouraged to attend classes by their partner, service providers, or both | 1.65 | 2.00 | 0.71 | 95.7 |
| Perception by fathers that it is not manly to attend | 1.83 | 2.00 | 0.72 | 91.3 |
| Societal and cultural norms that pregnancy is women's business | 1.57 | 2.00 | 0.59 | 95.7 |
| Lack of role identity by an expecting father | 1.65 | 2.00 | 0.57 | 95.7 |
| Fathers may feel left out and as though they do not belong when they attend class | 1.78 | 2.00 | 0.60 | 91.3 |
| General lack of understanding of the importance of the role of fathers in the wellbeing of growing prenates | 1.39 | 1.00 | 0.50 | 100 |
| Fear of becoming a father, being judged, not fitting in, being in a group setting, the potential of having to talk about emotions | 1.83 | 2.00 | 0.83 | 82.6 |
| Poor paternal leave policies reducing motivation by fathers to engage in parenting preparation | 1.57 | 1.00 | 0.84 | 87.0 |
| Lack of father-to-father mentoring in current programs | 1.61 | 2.00 | 0.58 | 95.7 |
| Lack of current programs being facilitated by men | 1.65 | 1.00 | 0.88 | 82.6 |
| Cultural and societal norms where boys are not taught from a young age to become caring, supportive, self-responsible, and empowered men and fathers | 1.65 | 2.00 | 0.65 | 91.3 |

| | | | | |
|---|---|---|---|---|
| Males have a more natural confidence about parenting than do women and do not feel the need to attend | 4.43 | 4.00 | 0.59 | 95.7 (Disagree) |
| Perceived general lack of desire and an unwillingness to participate in classes by men | 2.15 | 2.00 | 0.93 | 80.0 |
| Fathers do not directly experience the pregnancy, leading to less communication and connection with the baby in-utero which influences a perceived lack of need to attend classes | 2.05 | 2.00 | 0.51 | 85.0 |
| *Groups of parents who may benefit from having access to PPN parenting programs* | | | | |
| First-time parents ** | 1.00 | 1.00 | 0.00 | 100 |
| Existing parents who are pregnant again ** | 1.48 | 1.00 | 0.59 | 95.7 |
| Pregnant teens ** | 1.00 | 1.00 | 0.00 | 100 |
| Single parents ** | 1.04 | 1.00 | 0.21 | 100 |
| Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges) ** | 1.04 | 1.00 | 0.21 | 100 |
| Same-sex couples ** | 1.04 | 1.00 | 0.21 | 100 |
| Parents with trauma history | 1.04 | 1.00 | 0.21 | 100 |
| Parents expecting multiples | 1.04 | 1.00 | 0.21 | 100 |
| Parents who are adopting | 1.09 | 1.00 | 0.29 | 100 |
| Surrogacy parents (both birth mother and intended parents) | 1.09 | 1.00 | 0.29 | 100 |
| All primary support people | 1.30 | 1.00 | 0.47 | 100 |

| | | | | |
|---|---|---|---|---|
| Existing parents who are pregnant again and who did not take classes with previous pregnancy/s | 1.22 | 1.00 | 0.42 | 100 |
| Children from early school age through until end of school | 1.96 | 2.00 | 0.93 | 78.3 |
| Non parents: birth professionals and educators | 1.35 | 1.00 | 0.57 | 95.7 |
| *Who should attend PPN parenting programs* | | | | |
| Mum only ** | 4.43 | 5.00 | 0.95 | 91.3 (Disagree) |
| Dad only ** | 4.48 | 5.00 | 0.95 | 91.3 (Disagree) |
| Both mum and dad/partner ** | 1.00 | 1.00 | 0.00 | 100 |
| Grandparents | 2.00 | 2.00 | 0.67 | 78.3 |
| Extended family members who will be caregivers to the baby once born | 1.83 | 2.00 | 0.72 | 91.3 |
| Both mum and dad/partner with some sessions for dad/partner only ** | 1.65 | 2.00 | 0.75 | 95.0 |
| Both mum and dad/partner with some sessions for mum only ** | 1.90 | 2.00 | 0.91 | 85.0 |
| *Stage of the pregnancy that may be the most effective time for parents to start in PPN parenting programs* | | | | |
| As soon as the couple discover they are pregnant | 1.91 | 2.00 | 0.89 | 78.3 |
| Trimester one | 1.87 | 2.00 | 0.87 | 87.0 |
| Late teens/early adulthood—prior to any pregnancy | 1.74 | 2.00 | 0.81 | 78.3 |

| | | | | |
|---|---|---|---|---|
| *How information in PPN parenting programs can most effectively be presented/delivered* | | | | |
| Use of video ** | 2.04 | 2.00 | 0.93 | 82.6 |
| Experiential (e.g., practicing skills, modelling of skills, role-playing, parent's sharing experiences, discussions) ** | 1.35 | 1.00 | 0.71 | 95.7 |
| Home practice activities to consolidate learning ** | 1.74 | 2.00 | 0.75 | 91.3 |
| Standardised one-size-fits-all program ** | 4.26 | 4.00 | 0.62 | 91.3 (Disagree) |
| Individualised program where couples can select modules that apply to their unique circumstances ** | 2.00 | 2.00 | 0.80 | 78.3 |
| A combination of standardised core modules along with the ability to select other modules that apply to your unique circumstances ** | 1.65 | 2.00 | 0.57 | 95.7 |
| Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, printed resources, take home tasks) ** | 1.17 | 1.00 | 0.39 | 100 |
| *The most effective platform for delivery of PPN parenting programs* | | | | |
| In-person group sessions in a training room environment ** | 2.04 | 2.00 | 0.64 | 78.3 |
| Sessions delivered via home visits ** | 1.87 | 2.00 | 0.69 | 91.3 |
| Sessions delivered in community centres ** | 1.74 | 2.00 | 0.62 | 91.3 |
| In a parent-to-parent mentoring environment | 1.65 | 2.00 | 0.78 | 91.3 |

| | | | | |
|---|---|---|---|---|
| In-person couple sessions in a training room environment ** | 2.25 | 2.00 | 0.91 | 75.0 |
| *Who ought to deliver PPN parenting programs* | | | | |
| Midwife ** | 1.87 | 2.00 | 0.87 | 91.3 |
| Childbirth educator ** | 1.35 | 1.00 | 0.57 | 95.7 |
| Parents ** | 2.04 | 2.00 | 0.77 | 78.3 |
| Collaboration between psychologist, midwife, and childbirth educator | 1.65 | 1.00 | 0.94 | 87.0 |
| Doula ** | 2.30 | 2.00 | 1.13 | 75.0 |
| Anyone who can be personal in their approach | 3.75 | 4.00 | 0.79 | 75.0 (Disagree) |
| *The most effective amount of time between each session* | | | | |
| One week | 1.87 | 2.00 | 0.76 | 78.3 |
| Between 5-7 days | 1.90 | 2.00 | 0.85 | 80.0 |

** Item originated from the literature

## Appendix T

### Birth Professional Delphi Study: Items by Question that Did Not Attain Consensus across Rounds 1 to 3 (Study 4)

| Question/Items | M | Mdn | SD | Consensus (%) |
|---|---|---|---|---|
| *Factors that may impact both the development of prenates during gestation and influence who babies become post birth* | | | | |
| Age of mother ** | 2.60 | 2.50 | 0.82 | 50.0 |
| Ultrasound exposure | 2.75 | 2.00 | 1.12 | 55.0 |
| *Content perceived to be most effective regarding the needs of expecting parents when considering PPN parenting programs* | | | | |
| Sleep training ** | 3.35 | 4.00 | 1.31 | 55.0 (Disagree) |
| How to influence gene expression of the baby in-utero ** | 2.75 | 3.00 | 1.02 | 35.0 |
| Pregnancy, birth, and parenting as a spiritual experience | 2.05 | 2.00 | 0.83 | 65.0 |
| Current population trends in pregnancy, birth, and post birth health | 2.90 | 3.00 | 1.02 | 40.0 |
| *Content perceived to be ineffective regarding the needs of expecting parents when considering PPN parenting programs* | | | | |
| Drug options for birth | 3.45 | 4.00 | 1.32 | 65.0 (Disagree) |
| Sleep training | 3.05 | 3.00 | 1.36 | 45.0 (Disagree) |

| | | | | |
|---|---|---|---|---|
| Non-relevant birthing positions | 2.65 | 3.00 | 1.04 | 45.0 |
| Milestones that extend beyond three months post birth | 3.10 | 3.00 | 1.07 | 45.0 (Disagree) |
| Content that is not contextualised for the father too | 2.75 | 2.50 | 1.16 | 50.0 |
| Content that is predominantly focussed on techniques, mechanics, and technical information | 2.70 | 2.50 | 1.22 | 50.0 |
| Feelings of prenates | 4.10 | 4.00 | 0.85 | 70.0 |
| Any topic that the facilitator is not sure is useful for parents | 2.85 | 3.00 | 0.99 | 35.0 |
| Any topic that the facilitator is not comfortable presenting | 3.00 | 3.00 | 1.17 | 40.0 (Disagree) |
| Immunisation | 3.55 | 4.00 | 1.10 | 55.0 (Disagree) |
| Influence of gene expression | 3.15 | 3.00 | 0.93 | 30.0 (Disagree) |
| Parenting philosophies | 3.35 | 4.00 | 0.99 | 55.0 (Disagree) |
| Any content areas that do not meet parents where they are at (i.e., in terms of beliefs and/or readiness to receive information) | 2.70 | 2.50 | 1.13 | 50.0 |
| Any content area that is not presented from an evidence-base | 2.95 | 3.00 | 1.19 | 40.0 |
| *Current practices and/or theories that relate to conception, pregnancy, birth, and post birth that* | | | | |

| | | | | |
|---|---|---|---|---|
| *would be of value to educate pregnant couples on* | | | | |
| Conscious conception | 2.30 | 2.00 | 1.30 | 65.0 |
| Bonding through meditation | 2.10 | 2.00 | 0.85 | 70.0 |
| Somatic Experiencing | 2.30 | 2.50 | 0.80 | 50.0 |
| CBT for parenting | 2.65 | 2.50 | 1.04 | 50.0 |
| Social nervous system (as part of Porge's Polyvagal Theory) | 2.15 | 2.00 | 0.75 | 65.0 |
| *Factors that may contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers* | | | | |
| Women feel comfortable talking to other women so need a women-only environment | 2.65 | 2.00 | 1.04 | 60.0 |
| *Who should attend PPN parenting programs* | | | | |
| Siblings | 2.25 | 2.00 | 0.85 | 70.0 |
| *Stage of the pregnancy that may be the most effective time for parents to start in PPN parenting programs* | | | | |
| No set time—when the parent/s are ready and motivated to attend prenatal classes/education sessions | 2.80 | 2.50 | 1.32 | 50.0 |
| Preconception | 2.20 | 2.00 | 1.00 | 70.0 |
| Trimester two | 2.35 | 2.00 | 1.18 | 70.0 |
| Trimester three | 2.60 | 2.00 | 1.35 | 60.0 |

| | | | | |
|---|---|---|---|---|
| After quickening (when the mother perceives fetal movement) | 2.80 | 2.50 | 1.24 | 50.0 |
| After first ultrasound | 3.05 | 3.00 | 1.19 | 45.0 (Disagree) |
| *The most effective time for PPN parenting programs to end* | | | | |
| Before birth ** | 3.65 | 4.00 | 0.99 | 73.0 (Disagree) |
| Within three months post birth ** | 2.45 | 2.00 | 1.09 | 60.0 |
| Within three to six months post birth ** | 2.50 | 2.00 | 0.95 | 60.0 |
| Within six to 12 months post birth ** | 2.60 | 2.00 | 1.23 | 55.0 |
| Three years post birth | 3.40 | 4.00 | 1.10 | 55.0 (Disagree) |
| *How information in PPN parenting programs can most effectively be presented/delivered* | | | | |
| Lecture style ** | 3.15 | 3.00 | 1.09 | 45.0 (Disagree) |
| Manual/workbook ** | 2.85 | 3.00 | 0.93 | 45.0 |
| *The most effective platform for delivery of PPN parenting programs* | | | | |
| In-person group sessions in a hospital setting ** | 2.60 | 2.50 | 0.99 | 50.0 |
| In-person couple session in a hospital setting ** | 2.70 | 2.50 | 1.08 | 50.0 |
| Self-guided learning from home (e.g., with downloadable videos, worksheets, manual) ** | 2.60 | 2.00 | 0.88 | 55.0 |
| 'Live' webinar sessions that are interactive, where | | | | |

| | | | | |
|---|---|---|---|---|
| a parent can ask questions either verbally or by typing them, and contribute 'live' during the sessions ** | 2.35 | 2.00 | 0.88 | 70.0 |
| 'Live' webinar sessions that are not interactive (where a parent can listen 'live' to sessions, but cannot actively contribute) ** | 3.20 | 3.00 | 1.15 | 45.0 (Disagree) |
| Sessions delivered in the workplace ** | 3.20 | 3.00 | 1.06 | 45.0 |
| Sessions delivered via phone, Skype, Zoom (or other similar platforms) ** | 2.70 | 3.00 | 0.80 | 40.0 |
| *Who ought to deliver PPN parenting programs* | | | | |
| OB/GYN ** | 3.25 | 3.00 | 1.16 | 45.0 (Disagree) |
| Nurse ** | 2.50 | 2.00 | 1.05 | 55.0 |
| Psychologist, social worker, therapist, counsellor, coach ** | 2.25 | 2.00 | 0.97 | 60.0 |
| Academic researchers ** | 3.45 | 4.00 | 0.89 | 60.0 (Disagree) |
| Elders from the community ** | 2.90 | 3.00 | 0.97 | 45.0 |
| Collaboration of different community members from diverse backgrounds | 2.30 | 2.00 | 1.03 | 60.0 |
| Community outreach people | 3.05 | 3.00 | 0.89 | 40.0 (Disagree) |
| Anyone with skills to coach, offer support and encouragement, be culturally sensitive, and listen | 2.90 | 3.00 | 1.12 | 45.0 |

| | | | | |
|---|---|---|---|---|
| Anyone who has passion for the material and can deliver in a good way | 3.10 | 3.00 | 0.91 | 40.0 (Disagree) |
| Any facilitator, regardless of credentials, who has the right attitude (e.g., positive, empowering, optimistic, open minded) | 3.60 | 4.00 | 0.82 | 70.0 (Disagree) |
| *The most effective length of each session in PPN parenting programs* | | | | |
| 45 minutes | 3.40 | 3.50 | 0.94 | 50.0 (Disagree) |
| One hour | 2.70 | 2.00 | 1.13 | 55.0 |
| 1.5 hours | 2.55 | 2.00 | 1.05 | 55.0 |
| Two hours | 2.25 | 2.00 | 1.02 | 65.0 |
| 2.5 hours | 2.70 | 2.50 | 1.13 | 50.0 |
| Three hours | 3.25 | 4.00 | 0.91 | 55.0 (Disagree) |
| Half day | 3.30 | 3.50 | 0.80 | 50.0 (Disagree) |
| Full day | 3.35 | 4.00 | 0.99 | 55.0 (Disagree) |
| No set-time—course specific | 2.65 | 3.00 | 1.04 | 45.0 |
| *The most effective amount of time between each session* | | | | |
| Between 1-5 days | 3.30 | 4.00 | 0.87 | 55.0 (Disagree) |
| Between 1-2 weeks | 2.70 | 2.00 | 1.08 | 55.0 |
| Two weeks | 3.15 | 4.00 | 0.99 | 55.0 (Disagree) |
| One week for sessions held in trimester one and then more spread out up until the end of the pregnancy | 3.15 | 3.50 | 0.99 | 50.0 |

| | | | | |
|---|---|---|---|---|
| | | | | (Disagree) |
| *The most effective overall length of PPN parenting programs in time (e.g., number of weeks or months)* | | | | |
| Six weeks | 2.70 | 2.50 | 1.13 | 50.0 |
| Between 7– 10 weeks | 3.00 | 3.00 | 0.97 | 40.0 (Disagree) |
| Eight weeks | 3.25 | 3.50 | 0.85 | 50.0 (Disagree) |
| 12 weeks | 3.30 | 4.00 | 0.98 | 55.0 (Disagree) |
| 16 weeks | 3.50 | 4.00 | 0.83 | 60.0 (Disagree) |
| No set time – it depends on the needs of the parents | 2.25 | 2.00 | 0.79 | 65.0 |
| From trimester on until birth | 3.15 | 3.00 | 0.933 | 45.0 (Disagree) |
| From trimester one until three months post birth | 2.35 | 2.00 | 0.93 | 65.0 |
| From trimester one until six months post birth | 2.80 | 3.00 | 1.15 | 45.0 |
| From 12 months preconception until post birth | 3.25 | 3.00 | 0.91 | 45.0 (Disagree) |
| Five weeks in trimester one and five weeks in trimester three | 3.55 | 4.00 | 0.76 | 60.0 (Disagree) |
| Six weeks spanning trimesters one and two, two weeks at end of trimester three, and two weeks three months post birth | 3.30 | 3.00 | 0.73 | 45.0 (Disagree) |
| Six weeks every three months from trimester one until 12 months post birth | 3.40 | 4.00 | 0.82 | 55.0 |

| | | | | |
|---|---|---|---|---|
| | | | | (Disagree) |
| From trimester two until three months post birth | 3.30 | 4.00 | 0.92 | 55.0 (Disagree) |
| From trimester three until three months post birth | 3.40 | 4.00 | 0.75 | 55.0 (Disagree) |

** Item originated from the literature

## Appendix U

### Birth Professional Delphi Study: Summary of Key Recommendations from Study 4

| *Topic:* sub-topic | Item Description |
|---|---|
| *Content categories for inclusion in future PPN parenting programs:* | |
| Factors that may impact both the development of prenates and who babies become post birth | |
| | Maternal diet |
| | Nutritional supplements |
| | Impact of substance use (e.g., alcohol, nicotine, pesticides) |
| | DNA |
| | Mother-prenate and father-prenate relationship in the womb |
| | Life stress experienced by mum and dad at time of conception and during the pregnancy |
| | Level of physical activity for general health of mum during the pregnancy |
| | Maternal and paternal stress, anxiety, and/or depression |
| | Mother's and father's perceptions (thoughts, attitudes, feelings, beliefs - both positive or negative) of each other, events and environment experienced during pregnancy) |
| | Quality of relationship between the mother and father at time of conception and during the pregnancy |
| | Maternal abuse (mental, physical, emotional) |
| | General health of mother and father at time of conception and during the pregnancy |
| | Social support available to the mother and father during the pregnancy and beyond |
| | Epigenetics (e.g., stress and trauma imprinting passed down and influencing a prenate's genetic expression) |
| | Mother's and father's perception of if they will be a 'good enough' parent |
| | Unprocessed attachment and relational trauma of the mum |
| | Mothers' and fathers' ability to self-regulate their own nervous systems to a calm and restful state consistently each day during pregnancy |
| | Mother's perception of her ability to grow, birth, and parent her baby |

| | |
|---|---|
| | Maternal and paternal family history of health issues and diseases<br>Ability for mothers and fathers to engage with each other and with their babies from a place of secure attachment during the time of pregnancy and beyond<br>Quality of the birthing experience for mother, father, and baby<br>Conscious connection created intentionally between both parents and baby in-utero and post birth<br>Whether the prenate's gender is wanted by one or both of the parents<br>Love being expressed to the prenate from conception onwards<br>Mothers and fathers differentiating any negative or challenging thoughts, feelings, and experiences during the pregnancy from the prenate (and baby post birth), using coherent dialogue directed towards the baby<br>Preconception dynamics between a mother and father<br>Mother's level of self-care during pregnancy and post birth<br>IVF process to conceive<br>Unprocessed trauma of mother and/or father relating specifically to sexual abuse<br>Unprocessed attachment and relational trauma of the father<br>Sibling attitude about the pregnancy |
| Content that supports parents' needs<br>• During pregnancy | Developmental milestones in the womb<br>Social support training and how to ask for support<br>Overcoming fears relating to pregnancy, birth, and parenting<br>Education on physiological and psychological development in the prenatal period<br>Understanding conscious awareness scope of prenate during pregnancy<br>Mindfulness skills for pregnancy, labour, birth, and post birth<br>Differentiation parenting - intentional narrative between parent and prenate (and baby post birth) differentiating current adult experience and emotions from baby<br>How to integrate siblings to the new family structure during pregnancy and post birth<br>Intentional communication with the baby during pregnancy<br>Diet, exercise, and general health during pregnancy<br>Learning about nervous system regulation and how thoughts and actions influence the growing baby's nervous system<br>How a father can bond with baby during pregnancy and post birth |

| | |
|---|---|
| | Mindfulness skills for developing healthy relationships with self, partner, and baby<br>Understanding the needs and importance of dad/partner and ways to include him from conception onwards<br>Understanding the different ways a baby's growth in-utero is influenced during pregnancy<br>Up-to-date and relevant pregnancy and parenting resources available (in the community as well as evidence based resources) |
| • During labour and birth | All birthing options available<br>How to have a natural and drug-free birth<br>Educating on rights and choices available regarding newborn procedures<br>How to ask for the birth you want in a hospital setting and how to say 'no'<br>Preparation for labour and childbirth<br>Understanding the importance of minimising the number of interventions at birth, the consequences for mother and baby as interventions stack onto each other, and ways to reduce having interventions<br>Importance of skin-to-skin contact at birth |
| • Post birth | Breastfeeding<br>How to soothe baby post birth<br>Co-sleeping<br>How to maximise bonding and attachment<br>Understanding maternal and paternal post birth mood disorders<br>How to recognise generational parenting patterns and adjust when desired<br>Understanding communication cues, reactions, and cries of baby post birth<br>Managing expectations post birth by debunking perfectionism and cultivating being a 'good enough' parent post birth<br>How to live the life you want post birth |
| • Couple specific | Healthy and adaptive coping skills for the changes parenthood brings<br>How to connect, communicate, and work as a team in the couple relationship<br>Self-care<br>Building secure attachment as a couple (via touch, words, and emotional connection)<br>Strengthening the couple relationship for the transition to parenthood |

Stress management
Understanding role identity change during the transition from couple to parenthood
Tips for shared parenting
How to process own birth trauma and early imprints before birthing own baby

*Current practices and/or theories that relate to conception, pregnancy, birth, and post birth that would be of value to educate pregnant couples on*

- Birth related

  Midwifery model of care
  Sacred hour: skin-to-skin contact
  Informed choice for circumcision
  Natural birth practices
  Delayed cord clamping

- Post birth related

  Infant mental health
  Postpartum mood disorders

- Cutting edge fields

  Emotional development of the prenate in-utero
  Consciousness of a prenate and neonate
  Epigenetics
  Conscious parenting
  Mindfulness for parenting
  Affect regulation (self, as a couple, and for baby)
  Prenatal and birth trauma imprinting
  Neuroscience (in the context of developing prenate and neonate)

- Theory

  PPN psychology

| | |
|---|---|
| | Bonding and attachment theory<br>Intuitive knowing and innate mothering wisdom and how to tap into it |
| *Barriers that influence fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers that need to be considered and problem solved for future PPN parenting programs* | |
| | Work schedule and clashes with class times (and a lack of support to attend from the workplace)<br>Lack of support from workplaces for fathers to take time away from work to attend classes<br>Societal and cultural norms that pregnancy and birthing is mum's role and it is not manly to attend<br>Information in sessions targeted towards mum and baby only<br>Fathers not being invited or encouraged to attend by partner and service providers<br>Lack of role identity by an expecting father<br>When do attend sessions, often feel left out/do not belong<br>General lack of understanding of the importance of the role of fathers on wellbeing of prenates<br>Fear of being judged, being in a group, of becoming a father, of having to share emotions in group<br>Poor paternal leave options (reducing motivation to engage in parenting preparation)<br>Lack of father-to-father mentoring in current programs<br>Lack of current programs being (co)facilitated by men<br>Cultural and societal norms that do not advocate boys becoming caring, supportive, self-responsible, and empowered men and fathers<br>Fathers do not directly experience the pregnancy, leading to less communication and connection with the baby in-utero, which influences a perceived lack of need to attend classes |
| *Groups of parents who may benefit from having access to PPN parenting programs* | |
| | First-time parents<br>Pregnant teens |

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| | Existing parents who are pregnant again and did not take classes previously<br>Single parents<br>Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges)<br>Same-sex couples<br>Parents with trauma in their history<br>Parents expecting multiples<br>Parents who are adopting<br>Surrogacy parents (both birth mother and intended parents)<br>All primary support people<br>Children from early school age through until end of school<br>Non parents: birth professionals and educators |
| *Who should attend PPN parenting program sessions* | |
| | Mum only<br>Dad only<br>Both mum and dad/partner<br>Both mum and dad/partner with some sessions for dad/partner only<br>Both mum and dad/partner with some sessions for mum only<br>Grandparents<br>Extended family members who will be caregivers to the baby once born |
| *Most effective stage of pregnancy to start PPN parenting programs* | |
| | Trimester one<br>As soon as the couple discover they are pregnant<br>Late teens/early adulthood and prior to any pregnancy |
| *Most effective delivery methods of content during PPN parenting programs* | |

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|---|---|
| | Videos |
| | Experiential base (e.g., practicing skills, modelling of skills, role playing, parents sharing experiences, discussions) |
| | Home practice activities (to help parents consolidate learning) |
| | Individualised program where couples can select modules that apply to their unique circumstances |
| | A combination of standardised core modules, along with the ability to select other modules that apply to your unique circumstances |
| | Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, printed resources, take home tasks) |
| *Most effective location for delivery of PPN parenting programs* | |
| | In-person group sessions in a training room environment |
| | Sessions delivered via home visits |
| | Sessions delivered in community centres |
| | In a parent-to-parent mentoring environment |
| | In-person couple sessions in a training room environment |
| *Who ought to deliver PPN parenting programs* | |
| | Midwife |
| | Childbirth educator |
| | Parents |
| | Collaboration between psychologist, midwife and childbirth educator |
| | Doula |
| | Anyone who can be personal in their approach |
| *Most effective amount of time between each session* | |
| | Between 5-7 days |
| | One week |

## Appendix V

### Questions and Related Literature-Derived Items that Attained Consensus by both Parent and Birth Professional Panellists

| Question | Item | Parent Mean | Parent Consensus (%) | Birth Professional Mean | Birth Professional Consensus |
|---|---|---|---|---|---|
| *Factors that may impact both the development of prenates during gestation and who babies become post birth* | | | | | |
| | Maternal diet | 1.28 | 100 | 1.22 | 96.9 |
| | Nutritional supplements | 1.72 | 82.8 | 1.72 | 81.3 |
| | Substances (e.g., alcohol, nicotine, other drugs, pesticides, heavy metals, toxic chemicals) | 1.38 | 93.1 | 1.13 | 100 |
| | DNA | 1.52 | 89.7 | 1.47 | 96.9 |
| | Mother-prenate relationship in the womb (e.g., degree of being wanted, interaction between mum and prenate throughout the pregnancy) | 1.24 | 93.1 | 1.19 | 96.9 |
| | Father-prenate relationship in the womb (e.g., degree of being wanted, interaction between dad and prenate throughout the pregnancy) | 1.66 | 82.8 | 1.41 | 90.7 |

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|---|---|---|---|---|
| Life stress experienced by mum and dad at time of conception and during the pregnancy | 1.28 | 100 | 1.19 | 100 |
| Level of physical activity for general health of mum during the pregnancy | 1.72 | 93.1 | 1.72 | 90.6 |
| Maternal stress, anxiety, and/or depression | 1.21 | 100 | 1.13 | 100 |
| Paternal stress, anxiety, and/or depression | 1.69 | 86.2 | 1.41 | 96.9 |
| Mothers and fathers perceptions (thoughts, attitudes, feelings, beliefs; both positive or negative) of each other, events, and environment experienced during pregnancy | 1.52 | 96.6 | 1.19 | 96.9 |
| Quality of relationship between the mother and father at time of conception and during the pregnancy | 1.59 | 86.2 | 1.34 | 93.8 |
| Maternal abuse (mental, physical, emotional) | 1.28 | 96.6 | 1.09 | 100 |
| General health of mother at time of conception and during the pregnancy (e.g., weight, blood | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | pressure) | 1.69 | 86.2 | 1.34 | 100 |
| *What content is most effective regarding the needs of expecting parents when considering PPN parenting programs?* | | | | | |
| | Healthy and adaptive coping skills for the changes parenthood brings | 1.46 | 96.3 | 1.17 | 100 |
| | Education on natural and drug-free births | 2.00 | 77.8 | 1.52 | 82.6 |
| | How to ask for the birth you want in a hospital setting | 1.86 | 81.5 | 1.22 | 95.7 |
| | How to soothe baby | 1.46 | 92.6 | 1.22 | 100 |
| | General bonding and attachment skills | 1.68 | 92.6 | 1.17 | 100 |
| | Ways the father can bond with baby during pregnancy and post birth | 1.68 | 92.6 | 1.09 | 100 |
| | Skills for couple connection, communication, and working together | 1.64 | 85.2 | 1.13 | 100 |
| | Social support training and how to ask for support | 1.86 | 77.8 | 1.17 | 100 |

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|---|---|---|---|---|
| Ways a baby's growth and persona is influenced during pregnancy | 1.82 | 81.5 | 1.61 | 82.6 |
| Birthing options | 1.64 | 92.6 | 1.22 | 100 |
| Pregnancy health | 1.61 | 96.3 | 1.26 | 100 |
| Preparation for labour and childbirth | 1.61 | 92.6 | 1.22 | 100 |
| Breastfeeding | 1.61 | 88.9 | 1.39 | 95.7 |
| Skills for building secure attachment between the couple | 1.86 | 81.5 | 1.35 | 100 |
| Mindfulness skills for pregnancy, labour, birth, and post birth | 1.68 | 92.6 | 1.35 | 100 |
| Intentional communication with baby during pregnancy | 1.79 | 77.8 | 1.22 | 95.7 |
| Strengthening the couple relationship for the transition to parenthood (e.g., communication, role identity, maintaining intimacy, getting needs met, conflict resolution, how to emotionally support each other, create, maintain and sustain connection) | 1.61 | 88.9 | 1.09 | 100 |
| Ways to include dad/partner from conception onwards | 1.64 | 85.2 | 1.13 | 100 |

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|---|---|---|---|---|---|
| | Self-Care | 1.68 | 88.9 | 1.13 | 100 |
| | Education on developmental milestones in the womb | 2.00 | 77.8 | 1.90 | 80.0 |
| *Which groups of parents do you believe may benefit from having access to PPN parenting programs?* | | | | | |
| | First-time parents | 1.04 | 100 | 1.00 | 100 |
| | Pregnant teens | 1.07 | 100 | 1.00 | 100 |
| | Single parents | 1.36 | 92.6 | 1.04 | 100 |
| | Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges) | 1.21 | 100 | 1.04 | 100 |
| | Same-sex couples | 1.61 | 85.2 | 1.04 | 100 |
| *Who do you believe should attend PPN parenting programs?* | | | | | |
| | Mum only | 4.25 | 81.4 (Disagree) | 4.43 | 91.3 (Disagree) |
| | Dad only | 4.14 | 81.4 (Disagree) | 4.48 | 91.3 (Disagree) |
| | Both mum and dad/partner | 1.14 | 100 | 1.00 | 100 |

| | | | | | |
|---|---|---|---|---|---|
| | Both mum and dad/partner with some sessions for dad/partner only | 2.09 | 78.3 | 1.65 | 95.0 |
| *How do you believe information in PPN parenting programs can most effectively be presented/delivered?* | | | | | |
| | Use of video | 2.18 | 81.5 | 2.04 | 82.6 |
| | Experiential (e.g., practicing skills, modelling of skills, role-playing, parents sharing experiences, discussions) | 1.64 | 81.5 | 1.35 | 95.7 |
| | Home practice activities included to consolidate learning | 1.71 | 92.6 | 1.74 | 91.3 |
| | Individualised program where couples can select modules that apply to their unique circumstances | 1.82 | 85.2 | 2.00 | 78.3 |
| | A combination of standardised core modules along with the ability to select other modules that apply to your unique circumstances | 1.50 | 100 | 1.65 | 95.7 |
| | Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, printed resources, take home tasks) | 1.61 | 88.9 | 1.17 | 100 |

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|---|---|---|---|---|---|
| *In your opinion who ought to deliver PPN parenting programs?* | | | | | |
| | Midwife | 1.64 | 92.6 | 1.87 | 91.3 |
| | Childbirth educator | 1.71 | 96.3 | 1.35 | 95.7 |

## Appendix W

### Summary of Key Recommendations Collated from Parent and Birth Professional Delphi Panellists: Studies 3 and 4

| *Topic:*<br>sub-topic | Item Description (combined for both parent and birth professional Delphi groups) |
|---|---|
| *Content categories for inclusion in future PPN parenting programs:*<br>Factors that may impact both the development of prenates and who babies become post birth | |
| • Both Parent and Birth Professional Group Feedback | |
| | Maternal diet** |
| | Nutritional supplements** |
| | Impact of substance use (e.g., alcohol, nicotine, pesticides)** |
| | DNA** |
| | Mother-prenate and father-prenate relationship in the womb** |
| | Life stress experienced by mum and dad at time of conception and during the pregnancy** |
| | Level of physical activity for general health of mum during the pregnancy** |
| | Maternal and paternal stress, anxiety and/or depression** |
| | Mother's and father's perceptions (thoughts, attitudes, feelings, beliefs; both positive or negative) of each other, events, and environment experienced during pregnancy)** |
| | Quality of relationship between the mother and father at time of conception and during the pregnancy** |
| | Maternal abuse (mental, physical, emotional)** |
| | General health of mother at time of conception and during the pregnancy** |
| | Mother's and father's perception of if they will be a 'good enough' parent |
| | Maternal and paternal family history of health issues and diseases** |
| • Parent Group Feedback | |
| | Sounds (e.g., voices, laughter, singing, talking directly to the prenate, raised voices) |
| | Social support available to the mother |
| | Mother being empowered through the pregnancy and birth |

Mother's level of self-confidence to parent
Mother's unprocessed emotions relating to any previous pregnancy losses
Navigating the practicalities of parental leave options and conditions to maximise 'hands-on' time

- Birth Professional Group Feedback

Social support available to the mother and father during the pregnancy and beyond
Epigenetics (e.g., stress and trauma imprinting passed down and influencing a prenate's genetic expression)
Unprocessed attachment and relational trauma of the mum
Mothers' and fathers' ability to self-regulate their nervous systems to a calm and restful state consistently each day during the pregnancy
Mother's perception of her ability to grow, birth, and parent her baby
Ability for mother and father to engage with each other and with the baby from a place of secure attachment during the pregnancy and beyond
Quality of the birthing experience for mother, father, and baby
Conscious connection created intentionally between both parents and baby in-utero and post birth
Whether the prenate's gender is wanted by one or both of the parents
Love being expressed to prenates from conception onwards
Mothers and fathers differentiating any negative/challenging thoughts, feelings, and experiences had during pregnancies from prenates (and babies post birth), using coherent dialogue directed towards babies
Preconception dynamics between mother and father
Mother's level of self-care during pregnancy and post birth
IVF process to conceive
Unprocessed trauma of mother and/or father relating specifically to sexual abuse
Unprocessed attachment and relational trauma of the father
Sibling attitude about the pregnancy

Content that supports parents' needs

- *During pregnancy* - Both Parent and Birth Professional Group Feedback

Social support training and how to ask for support**
Mindfulness skills for pregnancy, labour, birth, and post birth**
Intentional communication with baby during pregnancy**
How a father can bond with baby during pregnancy and post birth**
Understanding the needs and importance of dad/partner and ways to include him from conception onwards**

- *During pregnancy* - Parent Group Feedback

Components of a healthy pregnancy
Mother's body changes during pregnancy
Optional module on latest research trends (e.g., epigenetics and transgenerational imprinting)
Diet and exercise during pregnancy

- *During pregnancy* – Birth Professional Group Feedback

Developmental milestones in the womb**
Overcoming fears relating to pregnancy, birth, and parenting
Education on physiological and psychological development in the prenatal period
Understanding conscious awareness scope of prenate during pregnancy
Differentiation parenting - intentional narrative between parent and prenate (and baby post birth), differentiating current adult experience and emotions from baby
How to integrate siblings to the new family structure during pregnancy and post birth
Learning about nervous system regulation and how thoughts and actions influence the growing baby's nervous system
Mindfulness skills for developing healthy relationships with self, partner, and baby
Understanding the different ways a baby's growth in-utero is influenced during pregnancy
Up-to-date and relevant pregnancy and parenting resources available (in the community as well as evidence based resources)

- *During labour and birth* - Both Parent and Birth Professional Group Feedback

  All birthing options available**
  How to have a natural and drug-free birth**
  How to ask for the birth you want in a hospital setting (how to say 'no')**
  Preparation for labour and childbirth**

- *During labour and birth* - Parent Group Feedback

  The facts of a caesarean section birth—during, after, emotions, recovery, bonding with baby
  Breathing techniques for labour and birth
  Medical facts relating to birth and how to have a positive birth experience
  Relaxation techniques for labour and birth
  Parent birth stories and parenting experiences
  Normalising birth and that a birth plan may not go to plan

- *During labour and birth* – Birth Professional Group Feedback

  Educating on rights and choices available regarding newborn procedures
  Understanding the importance of minimising the number of interventions at birth, the consequences for mother and baby as interventions stack onto each other, and ways to reduce having interventions
  Importance of skin-to-skin contact at birth

- *Post birth* - Both Parent and Birth Professional Group Feedback

  Breastfeeding (why and how)**
  How to soothe baby post birth**
  How to maximise bonding and attachment**

- *Post birth* - Parent Group Feedback

  Sleep training**
  Normal versus abnormal baby behaviour post birth
  Being a 'good enough' parent post birth
  Signs of postnatal depression

- *Post birth* – Birth Professional Group Feedback

  Co-sleeping
  Understanding maternal and paternal post birth mood disorders
  How to recognise generational parenting patterns and adjust when desired**
  Understanding communication cues, reactions, and cries of baby post birth
  Managing expectations post birth by debunking perfectionism and cultivating being a 'good enough' parent post birth
  How to live the life you want post birth

- *Couple specific* - Both Parent and Birth Professional Group Feedback

  Healthy and adaptive coping skills for the changes parenthood brings**
  How to connect, communicate, and work as a team in the couple relationship**
  Self-care**
  Building secure attachment as a couple (e.g., via touch, words, and emotional connection)**
  Strengthening the couple relationship for the transition to parenthood**
  Stress management

- *Couple specific* - Parent Group Feedback

  Positive strategies to manage emotional triggers and reactions during pregnancy and post birth
  Daily reality of pregnancy and parenting post birth
  How to process trauma and emotion from any past pregnancy/birth losses

- *Couple specific* - Birth Professional Group Feedback

  Understanding role identity change during the transition from couple to parenthood
  Tips for shared parenting
  How to process own birth trauma and early imprints before birthing own baby

*Ways to maintain level of engagement and involvement of parents in PPN parenting programs* – Parent Group Feedback Only

- Design related

  Individualise and personalise programs to focus on the needs of each couple
  Sessions to be experiential, interactive, and include discussions
  Opportunities to 'learn by doing' with activities, props, 'live demos' and tasks (e.g., nappies/diapers, dolls)
  Include practice and reflective activities to do at home between sessions
  Provide a schedule of topics that will be covered up front
  Start each session with a debrief of between session experiences
  Incorporate frequent breaks

- Content related

  Content that focusses on the 'why' not the mechanics of birth
  Content that focusses on health and wellbeing of baby
  Include skills that can be used in daily life
  Fears and hopes of parents
  Include 'real life' stories (e.g., video, guest parent speakers)
  Keep content relevant, simple, accurate, and practical
  Content to be relevant to both parents and on how to work as a team/partnership
  Hospital tour

- Environment related

  Creating a supportive, social, and community oriented environment
  Make sessions interactive between couples
  Make sessions fun, interesting, and entertaining

- Facilitator related

Provide feedback from skill practice sessions to enable growth
Judgement free
Seek topics from group before starting and include them throughout
Be engaging, enthusiastic, confident, and interested in content
Be emotionally connected
Treat participants as adults
Ask for feedback and incorporate changes based on it

*Current practices and/or theories that relate to conception, pregnancy, birth and post birth that would be of value to educate pregnant couples on –*
Birth Professional Group Feedback Only

- Birth related

Midwifery model of care
Sacred hour: skin-to-skin contact
Informed choice for circumcision
Natural birth practices
Delayed cord clamping

- Post birth related

Infant mental health
Postpartum mood disorders

- Cutting edge fields

Emotional development of the prenate in-utero
Consciousness of a prenate and neonate
Epigenetics
Conscious parenting
Mindfulness for parenting

Affect regulation (self, as a couple and for baby)
Prenatal and birth trauma imprinting
Neuroscience in context of developing prenate and neonate

- Theory

PPN psychology
Bonding and attachment theory
Intuitive knowing and innate mothering wisdom and how to tap into it

*Barriers that influence fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers* - Both Parent and Birth Professional Group Feedback

Work schedule (and clashes with class times)
General lack of understanding of the importance of the role of fathers in child care and wellbeing of prenates
Societal and cultural norms and perception that pregnancy and birthing is mum's role

*Barriers that influence fathers/partners attending less pregnancy and parenting related sessions/programs than expecting mothers* - Birth Professional Group Feedback

Lack of support from workplaces for fathers to take time away from work to attend classes
Information in sessions targeted towards mum and baby only
Fathers not being invited or encouraged to attend by partner and service providers
Lack of role identity by an expecting father
When do attend sessions, often feel left out/do not belong
Fear of being judged, being in a group, of becoming a father, of having to share emotions in group

| | |
|---|---|
| | Poor paternal leave options (reducing motivation to engage in parenting preparation)<br>Lack of father-to-father mentoring in current programs<br>Lack of current programs being (co)facilitated by men<br>Cultural and societal norms that do not advocate boys becoming caring, supportive, self-responsible, and empowered men and fathers<br>Fathers do not directly experience the pregnancy, leading to less communication and connection with the baby in-utero which influences a perceived 'lack of need' to attend classes |
| *Groups of parents who may benefit from having access to PPN parenting programs* - Both Parent and Birth Professional Group Feedback | |
| | First-time parents**<br>Pregnant teens**<br>Single parents**<br>Disadvantaged populations (e.g., low socio-economic status, ethnic minority, rural/remote, indigenous, those with drug/alcohol/domestic violence challenges)**<br>Same-sex couples** |
| *Groups of parents who may benefit from having access to PPN parenting programs* - Parent Group Feedback | |
| | Any expecting parent who wants to attend<br>Parents wanting to have a home birth<br>Mothers having a vaginal birth after a previous caesarean section |
| *Groups of parents who may benefit from having access to PPN parenting programs* - Birth Professional Group Feedback | |
| | Existing parents who are pregnant again and did not take classes previously<br>Parents with trauma in their history |

| | |
|---|---|
| | Parents expecting multiples<br>Parents who are adopting<br>Surrogacy parents (both birth mother and intended parents)<br>All primary support people<br>Children from early school age through until end of school<br>Non parents: birth professionals and educators |
| *Who should attend PPN parenting program sessions* - Both Parent and Birth Professional Group Feedback | |
| | Mum only**<br>Dad only**<br>Both mum and dad/partner**<br>Both mum and dad/partner with some sessions for dad/partner only** |
| *Who ought to attend PPN parenting program sessions* - Birth Professional Group Feedback | |
| | Both mum and dad/partner with some sessions for mum only**<br>Grandparents<br>Extended family members who will be caregivers to the baby once born |
| *Most effective stage of pregnancy to start PPN parenting programs* - Parent Group Feedback | |
| | Trimester two<br>When the parent/s are ready |
| *Most effective stage of pregnancy to start PPN parenting programs* – Birth Professional Group Feedback | |
| | Trimester one |

| | |
|---|---|
| | As soon as the couple discover they are pregnant<br>Late teens/early adulthood and prior to any pregnancy |
| *Most effective delivery methods of content during PPN parenting programs* - Both Parent and Birth Professional Group Feedback | |
| | Videos**<br>Experiential base (e.g., practicing skills, modelling of skills, role-playing, parents sharing experiences, discussions)**<br>Home practice activities (to help parents consolidate learning)**<br>Individualised program where couples can select modules that apply to their unique circumstances**<br>A combination of standardised core modules along with the ability to select other modules that apply to your unique circumstances**<br>Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, printed resources, take home tasks)** |
| *Most effective delivery methods of content during PPN parenting programs* - Parent Group Feedback | |
| | Inclusion of mingle time with refreshments where couples can get to know each other as part of the program<br>Up-to-date resources available online<br>Include question and discussion time to discuss couple relationship and family (not just mum and baby focus) |
| *Most effective location for delivery of PPN parenting programs* - Parent Group Feedback | |
| | In-person group sessions in a hospital setting** |
| *Most effective location for delivery of PPN parenting programs* – Birth | |

| | |
|---|---|
| Professional Group Feedback | In-person group sessions in a training room environment**<br>Sessions delivered via home visits**<br>Sessions delivered in community centres**<br>In a parent-to-parent mentoring environment<br>In-person couple sessions in a training room environment** |
| *Who ought to deliver PPN parenting programs* - Both Parent and Birth Professional Group Feedback | Midwife**<br>Childbirth educator** |
| *Who ought to deliver PPN parenting programs* - Parent Group Feedback | Nurse**<br>A collaboration between a range of qualified pregnancy and birth specialists<br>Anyone who understands the father role in pregnancy and who can deliver material in a non-condescending way<br>Anyone who is qualified and is caring, competent, non-judgmental, and confident<br>Anyone who is qualified and engaging, approachable, and knowledgeable |
| *Who ought to deliver PPN parenting programs* – Birth Professional Group Feedback | Parents**<br>Collaboration between psychologist, midwife, and childbirth educator<br>Doula**<br>Anyone who can be personal in their approach |
| *Most effective amount of time between each session* - Parent Group Feedback | |

| | |
|---|---|
| | Three months |
| | Five weeks |
| *Most effective amount of time between each session* – Birth Professional Group Feedback | |
| | Between 5-7 days |
| | One week |

** Item originated from the literature