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# Maternal Involvement in a Nurse Home Visiting Program to Prevent Child Maltreatment

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## **KEYWORDS**

child maltreatment, home visiting, clinical significance, maternal involvement, engagement, child abuse and neglect, ecological theory, integrated theory of parental involvement, community nursing, child health, attrition, at-risk mothers, vulnerable families, parental behaviour

## ABSTRACT

Preventing child maltreatment demands further serious research attention in Australia and indeed throughout the world. Consequences for affected children include short-term neglect and injury, as well as poor long-term outcomes in terms of psychological disorders, economic disadvantage, poor health, criminality and incarceration. Current research suggests that, due to high rates of recidivism, primary prevention is the most promising way to address the problem. As such, nurse home visiting programs in the antenatal and neonatal period are an effective method to access families and provide guidance and support during this vulnerable period. However, an emerging body of research is exposing the challenges faced by such programs in enrolling and retaining participating families, including ensuring they receive the intended number of visits. It is in this context that this study aimed to explore what maternal and program factors are related to maternal involvement in a nurse home visiting program to prevent child maltreatment, and if the intensity of maternal involvement is related to program outcomes.

Bronfenbrenner's Ecological Systems Theory and an Integrated Theory of Parental Involvement were used to contextualise the study design and shape research questions. The study used a combination of a secondary data analysis in conjunction with the collection and analysis of new primary data to answer the research questions. Secondary data analysis was performed using data collected during a randomised controlled trial in 2006, in which 40 women who met criteria placing them at risk of potential child maltreatment were enrolled in either the standard nurse home visiting program (Family Care) or the augmented intervention (Family Care and Parents Under Pressure – Babies). Primary data for the current study were collected in the form of a chart audit, in which the number of home visits mothers received and the duration of their enrolment in the home visiting program was extracted for investigation. Statistical analysis focussed on measures of clinical significance, and explored relationships between maternal involvement in the home visiting program and program augmentation, maternal involvement and maternal characteristics. Further correlations described the relationships between maternal involvement and program outcomes, and changes in maternal depression symptoms and program outcomes.

No clinically significant relationships were found between program augmentation and maternal involvement in the home visiting program. A pattern emerged in which women with

antenatal characteristics that categorise them as being ‘vulnerable’ (smoker, housing instability, financial stress, lower level of education, deterioration in score for child abuse potential and maternal depressive symptoms) received more home visits than other women. One notable exception to this finding is that women in relationships characterised by intimate partner violence were more likely to leave the program early and to receive less than the prescribed number of home visits. Furthermore, positive correlations were observed between number of visits received and program outcomes (HOME total score and maternal responsivity). A positive correlation was found where women who became more depressed had an increased likelihood of high levels of maternal-infant responsivity.

This study provides a valuable addition to the growing body of literature investigating what aspects of home visiting programs contribute to positive outcomes for families, and what maternal characteristics are potential risk factors for women either leaving home visiting programs early or not receiving the prescribed number of visits. In particular, it is essential to uncover exactly what causes some vulnerable women to receive more home visits, while others, such as those experiencing intimate partner violence, receive less. These findings highlight the importance of further, theoretically based research to disentangle antecedents of maternal involvement and the subsequent impact on program outcomes. Furthermore, the consistent application of a relevant theoretical framework, such as the Integrated Theory of Parental Involvement, to contextualise research design and findings is essential to ensure the continued evolution of high-quality, empirically-based research in this field.

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## STATEMENT OF ORIGINALITY

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

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# **Chapter 1: Introduction and Review of the Literature**

## **1.1 INTRODUCTION AND AIMS**

Home visiting programs to new families have been widely implemented in Australia and overseas, with generally positive results. Attempting to compare interventions is fraught with difficulty, given the degree to which they vary by program structure, provider type, target population and program outcomes. In spite of this variation, all home visiting programs experience challenges with implementation, and most have difficulty enrolling and retaining families. In addition, of families that are retained in the program, most do not receive the prescribed number of home visits. Varying definitions of maternal involvement abound, thus, in this thesis maternal involvement relates to the quantitative aspects of participation in the home visiting program (intensity, or, number of visits received, and duration of enrolment) and maternal engagement refers to qualitative aspects of maternal participation (completing personal development activities set by the program, or seeking further contact with the home visitor). Given the relationship between intensity of maternal involvement and program outcomes, this has significant implications for families who participate in the intervention and for garnering the support of policymakers for continued support of the programs.

Nurse home visiting programs for the prevention of child abuse and neglect have been implemented with varying degrees of success. Maternal involvement in perinatal health services and retention in follow-up community services such as nurse-led home visiting programs in Australia have received little research attention. International research on service involvement is also limited, and predominantly investigates programs that differ from those in Australia by target population, methods, duration, and qualifications of the home visitor. Moreover, few research studies have examined the relationship between maternal involvement and program outcomes. The aim of this thesis is to investigate relationships between program augmentation, maternal antenatal characteristics, changes in maternal wellbeing and maternal involvement in a nurse home visiting program to prevent child abuse

and neglect within the Australian context. Furthermore, the association between intensity of involvement, maternal depression and program outcomes will be explored.

A comprehensive literature review exploring empirical findings of predictors of maternal involvement in home visiting programs is presented in Chapter 1. In order to place the importance of maternal involvement in home visiting programs in context, a thorough overview of child maltreatment, early intervention programs and the role of home visitation in preventing its occurrence is provided in. When examined in the context of the theoretical framework, findings from this review formed the basis of the research questions and research design.

Through an ecological framework that acknowledges the many varied influences on maternal behaviour, as well as an integrated theory of parental involvement in home visiting programs, a number of possible influences on maternal involvement will be analysed for their potential impact on maternal involvement in the nurse home visiting program. These influences include program augmentation, socioeconomic variables, maternal psychological wellbeing and child abuse risk and are explored in Chapter 3. Selected maternal and program characteristics are examined for their relationships with intensity and duration of program involvement in Chapter 4. The program outcomes investigated were representative of parenting style and quality of the home environment. In order to test these relationships, the following research questions were formulated:

- A. Is maternal enrolment in an augmented nurse home visiting program related to intensity and duration of maternal involvement?
- B. Are maternal antenatal characteristics, and changes in maternal wellbeing over time, associated with intensity and duration of maternal involvement?
- C. Are intensity of maternal involvement and changes in maternal depression associated with suitability of the home environment and maternal responsiveness to the infant?

## **1.2 CHILD MALTREATMENT**

The consequences of child maltreatment have significant implications for individuals and communities. They include an increased risk of future drug and alcohol misuse, mental illness, homelessness, poor health, juvenile offending, criminality, incarceration, and in its

most severe outcome, death (Lamont, 2010). Although it is difficult to measure the precise financial cost of child maltreatment, it is estimated that \$2.5 billion was spent on children who had experienced, or were at risk of experiencing child abuse or neglect in Australia in 2009-2010 (Bromfield, Holzer, & Lamont, 2011). In addition to this direct government expenditure, it has been estimated that the annual cost for all people ever abused was \$4 billion in 2007, with a further \$6.7 billion spent on the burden of disease resulting from maltreatment (P. Taylor et al., 2008). Given the extent of the financial burden to the community, impacts on the individuals involved, and high rates of recidivism; primary and secondary prevention have been identified as the most effective approaches to child maltreatment.

Interpreting prevalence data on the incidence of child maltreatment is an ongoing challenge. Child maltreatment most often occurs in the home, and the perpetrators are usually family members or from within the child's inner social network. Furthermore, as a result of the difficulties children experience in reporting the crime, being believed, and the lack of supportive evidence, it is accepted that these statistics are an underestimate of the true incidence. The incidence may be further underestimated in children younger than school age, especially infants, due to their limited exposure to the broader community. Throughout 2009-2010, 286,437 suspicions of child abuse or neglect were reported to state or territory authorities, this equates to 56 children per 1000 population (Lamont, 2011). At the same time, 35,895 children, or 7 per 1000, lived in out-of-home care (Lamont, 2011). These statistics reflect only the instances of child abuse or neglect that are reported. Variation in response to reports and substantiation of abuse across jurisdictions further complicate accuracy (Mathews & Bross, 2008). For this reason, while this child protection data is the best available in Australia it is not necessarily an accurate reflection of how many children are actually being abused or neglected (Lamont, 2011).

Aboriginal and Torres Strait Islander (ATSI) children are over represented in child protection services. In 2009-2010 ATSI children were 7 times more likely to be the subject of a confirmed child abuse or neglect notification than non-Indigenous children (Berlyn, Bromfield, & Lamont, 2011). Other children at increased risk are those under 12-months of age, and children with a disability (Lamont, 2011). Adults are more likely to abuse their children if they are suffering from a mental illness, misusing illicit substances, of younger age, have an intellectual impairment, or if there is domestic violence in the home (Jordan &

Sketchley, 2009). Secondary risk factors include the parent-child relationship, parental perception of the child as a problem, parent anger/hyper-reactivity, high family conflict, and low family cohesion (Stith et al., 2009). Life event stressors, as well as demographic risk factors such as lack of financial resources and lower educational level have also frequently been identified as risk factors for child abuse or neglect (Willis, Holden, & Rosenberg, 1992). Infants are particularly vulnerable, due to their physical immaturity, under-developed verbal communication, social invisibility and almost complete dependence on others for survival (Jordan & Sketchley, 2009). Intervention during infancy holds the greatest chance for success in preventing developmental delays, mental health issues and problems with family functioning.

### **1.3 EARLY INTERVENTION**

Early intervention services to address child abuse and neglect range from multi-disciplinary clinics, supported playgroups, and parent education programs through to support provided in the home, such as home visiting. These public health programs may take the form of primary, secondary or tertiary interventions, in other words, they may adopt a universal or targeted approach. Primary prevention strategies, also known as universal prevention, are directed at the total population, without focus on risk factors or specific groups. Secondary prevention involves early identification of targeted, at-risk individuals. Tertiary prevention is targeted at individuals with already diagnosed conditions, or in this case, a prior notification for suspicion of abuse or neglect (Willis, et al., 1992). Research has suggested that in the field of child maltreatment, secondary prevention programs may be the most effective. In universal programs, services are often disproportionately utilised by low-risk families (Schmied et al., 2008), and in tertiary prevention programs, the likelihood of recidivism is high (MacMillan et al., 2005). Policy design and implementation of early intervention programs has therefore aimed to ensure that vulnerable families receive sufficient support when needed, while families without risk factors maintain access to appropriate services (M. Barnes, Courtney, Pratt, & Walsh, 2003).

While universal programs may at first seem attractive due to the lack of stigma attached, and for providing an opportunity to reach some vulnerable families who may otherwise not have



received appropriate services, targeted programs are more cost-effective, have more long-term sustainability, and are more effective in terms of achieving program outcomes. This may be in part because vulnerable populations have more scope to improve. The reported effectiveness of a targeted program is also dependent on the accuracy of the screening tool used. If parents are not screened for child abuse potential using a valid instrument, the true effect of child maltreatment prevention programs cannot be measured. For example, the findings of a meta analysis that universal home visiting programs to prevent child abuse and neglect were more effective than targeted services suggests the importance of the screening method (Guterman, 1999). Three hypotheses are presented by Guterman (1999) to account for the influence of psychosocial screens on research findings: (i) screening instruments hold questionable predictive accuracy in identifying future maltreatment, and may inappropriately identify families with low propensity to maltreat and for which services will not leverage further risk reduction, (ii) in screening for “high risk,” screening instruments may identify higher proportions of families less amenable to change, and simultaneously exclude families more amenable to change, and (iii) that screening tests or instruments may serve to identify and enrol higher proportions of families for which home visitation services are not appropriately matched to family need (Guterman, 1999). Furthermore, while this review (Guterman, 1999) found that rates of attrition from the programs were similar in both universal and targeted groups, intensity of involvement and characteristics of non-completers were not reported. These limitations, the length of time since publication (12 years) and the high degree of variance across the programs included in the review, suggest the findings must be interpreted with caution.

Australia’s framework for maternal and child health consists of a universal system, managed by the states and territories, in conjunction with specialist, targeted referral services. Federal early childhood strategies maintain a strong focus on child protection (Council of Australian Governments, 2009a, 2009b). The outcomes of these frameworks involve primary, secondary and tertiary concerns, such as supporting families and communities, addressing risk factors for child abuse and neglect, and supporting children who have experienced abuse (Council of Australian Governments, 2009b). While there is little specific mention of home visiting as a potential mechanism to support families in preventing child abuse and neglect, its inclusion is implicit in the strategies and outcomes described in the frameworks. These include ensuring children are born and remain healthy, that their environments are nurturing, culturally appropriate and safe, and improving the confidence of parents to support their child’s

development (Council of Australian Governments, 2009a). The continued roll out of a sustained nurse home visiting program in New South Wales (NSW) is discussed, however this program is not available to high-risk families (Beauchamp, 2011).

In Queensland, the universal system is fragmented, overlapping, and inconsistent. One post-birth visit is available to medically low-risk women, but only if they live in the catchment area of the hospital in which they gave birth (Hirst, 2005). In a review of maternity services in Queensland in 2005, Hirst (2005) found that many women, particularly first time mothers, reported needing more support than was provided. Areas particularly identified were breastfeeding and mother/baby care (Hirst, 2005). For those who receive home visits, they are appreciated; however some women do not receive them due to administrative or distance limitations. This has significant implications for women unable to access child health centres, especially for those experiencing postnatal depression. Some effort has been made to reach vulnerable women with the implementation of the Family Care nurse home visiting program in seven districts throughout Queensland; however, uptake of this program is at the discretion of the health district. While the implementation of a targeted program within a universal framework is not without its own unique challenges (Kemp & Harris, 2012), it may be the most effective strategy in early intervention services.

In most Australian states, nurse home visiting is an essential component of both universal and targeted early intervention services. Aside from the establishment of early childhood centres, Queensland policies focus largely on tertiary intervention to manage child abuse and neglect. This lack of primary and secondary focus is further reflected in state policies that, while acknowledging the complex interplay genetic, social, cultural, economic and environmental influences have on children's health, instead concentrate on promoting breastfeeding and vaccination, and decreasing rates of skin cancer and obesity (Queensland Health, 2010a, c2010). The framework maintains a consistent theme of improving access to child health services, particularly in rural and remote areas, and to reducing health inequality for Indigenous children. A specialist Indigenous health strategy covers the increased ante- and postnatal support being provided in the form of midwives, child health nurse home visitors and culturally appropriate health care workers, however the interventions specifically regarding child protection remain tertiary focused (Queensland Health, 2010b). Thus, while home visiting programs are implemented across Australia, this is not always reflected in public policy or published evaluations. This dearth of monitoring and evaluation has led to

inconsistency in program design and implementation, possibly to the detriment of services provided and outcomes achieved.

## **1.4 NURSE HOME VISITING**

### **1.4.1 Background**

Scientific strategies aimed at educating women and improving traditional birthing and childrearing practices have been gaining prominence ever since the Australian commission on the Decline of the Birth Rate and on the Mortality of Infants in 1903-4. This primarily occurred through the introduction of maternal and infant welfare services in an educational and surveillance role (M. Barnes, et al., 2003). In Queensland, these services originated as Baby Clinics, which were often mobilised by clinic staff travelling by train to traverse the long distances between Queensland centres (M. Barnes, et al., 2003). In more recent times there has been a shift from surveillance and monitoring through clinic services to a model that focuses on maternal health, wellness and child health (M. Barnes, et al., 2003). Home visiting is nested in an equitable access to healthcare approach, in an attempt to overcome previously identified barriers to service utilisation (Boag-Munroe & Evangelou, 2011). These barriers may involve communication difficulties (no telephone or internet, language and cultural challenges), the setting of the service (lack of transport, unwelcoming setting, lack of visibility of clinic, inappropriate venue) and involuntary isolation (domestic violence, chaotic home life, lack of organisation skills, time poverty, difficulty asking for help, misuse of drugs and alcohol). Most state and territory governments have implemented universal home visiting following the birth of a baby, with selected programs underway that involve sustained nurse home visiting to vulnerable families in South Australia, New South Wales, the Northern Territory, Victoria and Queensland. The Australian Nurse Family Partnership, an adaptation of the successful model from the United States, is currently in operation for a trial period in the Northern Territory and Queensland.

### **1.4.2 Effectiveness of Nurse Home Visiting Programs in Preventing Child Abuse and Neglect**

Nurse home visiting programs are generally acknowledged to be an effective early intervention strategy, however the size of their effect varies according to the program, the population being visited, and the outcomes being measured. Conducting a randomised controlled trial of an intensive nurse home visiting program is fraught with challenges (Kemp & Harris, 2012), and inconclusive results regarding program effectiveness have in part been attributed to the lack of rigorous evaluation methods, high participant attrition and attempts to compare vastly different interventions. Very few home visiting programs have the prevention of child maltreatment as a specific goal, even though such programs are widely acknowledged to play a significant role in its reduction (Howard & Brooks-Gunn, 2009; Mikton & Butchart, 2009). Evaluating outcomes in child maltreatment prevention programs is challenging. Due to the low incidence of child maltreatment and the inability to obtain accurate data regarding its occurrence in the population, government substantiation records are thought to be inappropriate when evaluating early intervention programs. In lieu of officially recorded outcomes, proxy measures such as child abuse potential, parenting stress, family functioning and harsh parenting style, are accepted as alternative measures of program effectiveness (Scott & Higgins, 2011), and may actually give greater insight into program impact than mandatory reporting data (Howard & Brooks-Gunn, 2009).

The Family Care program and Australian Nurse Family Partnership (NFP) are the only two currently available Australian nurse home visiting programs that include child maltreatment prevention within their service portfolio. Similar overseas programs are the American NFP, its United Kingdom counterpart and Early Start in New Zealand. Unlike programs implemented in the United States, Australian nurse home visiting programs usually consist of a secondary prevention program embedded in a universal framework. These programs aim to improve maternal and child health and wellbeing, as well as aiming for increases in breastfeeding and immunisation rates (Kemp et al., 2008; Sivak, Arney, & Lewig, 2008). Family Care is the only nurse home visiting program in Australia to specifically target child maltreatment prevention and to conduct research to evaluate the effectiveness of their program. The Australian NFP, based on its well-known and successful sister-program in the United States, includes child abuse prevention as a primary goal, however there is no published evaluation of this intervention.

Family Care has been operating in South East Queensland for over a decade. Women are enrolled antenatally if they are identified as being at-risk on any one of three primary risk factors for child maltreatment: currently misusing illicit substances; diagnosed with a mental illness or exhibit symptoms of depression; or in a violent relationship. The program consists of one hospital visit from a Family Care home visitor, who is a registered nurse with additional child health qualifications. Further home visits that focus on parenting skills, the home environment and nurturing the maternal-infant relationship are conducted over a 12 month period. Further details of this program are provided in Chapter 3 of this thesis. The effectiveness of the program in preventing child abuse and neglect in South East Queensland has been evaluated in a randomised controlled trial (Armstrong, Fraser, Dadds, & Morris, 1999). Initial results from the trial at 6-weeks found that mothers in the intervention group reported lower postnatal depression scores, were more satisfied with their role as parents, and scored higher on measures of the home environment, in particular, maternal attachment to the infant (Armstrong, et al., 1999) than mothers who received only standard postnatal care. These positive outcomes (with the exception of maternal depression) were maintained at the 4-month follow-up (Armstrong, Fraser, Dadds, & Morris, 2000). While measures of parenting and family stress in the immediate postnatal period were found to accurately predict maternal stress, depression, and child abuse potential at the 12 and 18-month follow-up (Fraser, Armstrong, Morris, & Dadds, 2000) differences in program outcomes had largely converged by the 12-month follow-up. These results suggest the importance of adequate support for women in the immediate postnatal period (Fraser, et al., 2000).

A more recent randomised controlled trial of the Miller Early Childhood Sustained Home-visiting (MECSH) program aimed to determine the effectiveness of an intensive two-year home visiting program in a vulnerable population living in South Western Sydney. The MECSH program aimed to improve the home environment and selected child and maternal health outcomes (Kemp et al., 2011). Home visits from a child and family health registered nurse commenced antenatally at approximately 26-weeks gestation and continued until the child's second birthday. Mothers in the intervention group breastfed for longer, and were more emotionally and verbally responsive to their infants at 12 and 24-months (Kemp, et al., 2011). These effects were also evident in psychosocially distressed mothers, whose children also fared better in terms of mental development than their control group counterparts (Kemp, et al., 2011). The South Australian Family Home Visiting (FHV) program has not been

formally evaluated; however an initial analysis of participant outcomes found no difference in maternal and child outcomes at 3 and 9-months compared to control group families (Lynch, 2011). A qualitative evaluation of participant experiences found high levels of program satisfaction among families retained in the intervention, particularly Indigenous families (Sivak, et al., 2008).

The MECSH and FHV programs are largely based on the Nurse Family Partnership program (NFP), which originated in the United States and has since been syndicated to the United Kingdom and Australia, among other countries. This program aims to prevent child maltreatment by improving maternal life course (education, employment) and supporting child development. Program recruitment in the United States focused on women who had no previous live births, were low income, unmarried and adolescent (Olds et al., 1999). The first randomised controlled trials of the United States NFP found that the program helped reduce rates of childhood injuries and ingestions of dangerous substances, as well as decreasing the occurrence of child maltreatment. Positive effects of the program on child maltreatment and injuries to children were most pronounced among mothers who, at enrolment, had the least psychological resources (Olds, et al., 1999). In a study of sustained nurse home visiting for at-risk families in New Zealand, there was no impact on the number of substantiated child maltreatment reports, but a sizeable effect on positive parenting, non-punitive parenting behaviours and severe assaults (Fergusson, Grant, Horwood, & Ridder, 2005). A similar intervention in the United Kingdom found the home visiting intervention significantly improved maternal sensitivity to the infant and infant cooperativeness (Barlow et al., 2007).

The relationship between other forms of domestic violence and child maltreatment is strong. The effects of violence, such as pain, distress, irritability, fear and injury, may impact on a mother's ability to parent effectively, as can mental illness or substance misuse problems that may emerge as a consequence of domestic violence. Domestic violence may also result in mothers being emotionally distant, unavailable or unable to meet their children's needs (Holt, Buckley, & Whelan, 2008). Bromfield, Sutherland and Parker (2012) have shown that children are more than passive observers of domestic violence: they are often hurt, either intentionally or unintentionally, during violence perpetrated against their mother. Furthermore, children do not become sensitised to domestic violence and may suffer long-term consequences such as emotional and behavioural problems (Øverlien, 2010). The influence of nurse home visiting in families that feature domestic violence is less clear.

Sharps and colleagues (2008) suggest that home visits can be effective in improving the health and wellbeing of non-pregnant, abused women, however, Eckenrode and others (2000) found that while nurse home visiting protected vulnerable children from maltreatment in families enrolled in the American NFP, these families did not feature domestic violence. There is no evidence to suggest that the American NFP has been effective in reducing rates of child maltreatment in homes that featured domestic violence (Eckenrode, et al., 2000; Olds et al., 2002). These findings are worthy of further investigation and more sophisticated measures of domestic violence are needed to disentangle these ambiguous results.

While nurse home visiting programs are not a panacea to prevent child maltreatment, the findings above suggest that they have an important role in contributing to decreasing the incidence of child maltreatment. The dearth of evidence resulting from substantiated reports of child maltreatment reinforces the lack of usefulness of this data, and the need for accurate, widespread and consistent measures of measuring child abuse risk in families receiving interventions. There are a range of programs that vary in who performs the home visits, the duration of the visits and of the program, the intensity of intervention, and program goals, yet the effectiveness of any of these combinations is uncertain.

The results from the brief overview outlined above of sustained nurse home visiting programs commencing during pregnancy or at birth suggest that these programs may have a measurable impact in reducing child abuse risk potential. The mechanism for this appears to be by improving parenting behaviours such as maternal attachment to the infant and reducing harsh, punitive parenting. Studies included in this review all commenced home visiting programs early (during pregnancy or at birth), were sustained for a period of time, and involved intensive nurse home visiting programs for at-risk families. The homogeneity of studies included in the above discussion may in part be responsible for the consistency of results. Reviews that evaluate home visiting programs in terms of their ability to reduce the incidence of child maltreatment but include studies in which it was not a primary goal of the program are fundamentally flawed. Ideally, programs should be evaluated on their intended outcomes, not their secondary effects. Furthermore, including home visiting programs in meta-analyses in spite of their great diversity in duration, goals and implementation conceals important differences among the programs and their effects, resulting in smaller effect sizes. Meta-analyses that attempt to control for this by evaluating moderators of program effects are unable to take into account challenges to program implementation, such as lack of program

fidelity and reduction of number of visits received (McLeod & Nelson, 2000; Nievar, Van Egeren, & Pollard, 2010; Sweet & Appelbaum, 2004).

### **1.4.3 Implementation**

Home visiting programs vary widely in their strategies for implementation, also making program comparison problematic. However, a common element across programs is the challenge of service delivery. This includes high staff turnover in program teams, maintaining professional boundaries in child protection cases, inconsistency with program fidelity, and challenges with enrolment and retention of participants into the service. Problems with program implementation, specifically with retention of participants and program fidelity, have been found to have a significant impact on program outcomes (Nievar, et al., 2010).

The professional focus and personal characteristics of the home visitor are emerging as an important component of program implementation. When visiting high-risk families, it can be challenging to maintain professional and ethical boundaries (Moules, MacLeod, Thirsk, & Hanlon, 2010). Nurses as home visitors can find it challenging to work within their scope of practice, with some nurses reporting high demands placed on them by child protection services to take on monitoring of family safety, rather than to provide the structured program focused on child development and family aspirations (Kemp & Harris, 2012). Paraprofessional home visitors visiting vulnerable families in the United States have reported difficulties with a lack of clinical skill, addressing family difficulties, addressing parenting difficulties, resolving personal difficulties and lack of experience (LeCroy & Whitaker, 2005). Nurses can also experience barriers to gaining and maintaining access to families. For example, with limits posed by the environment, difficulty identifying and engaging all stakeholders, problems with program integrity, balancing nurse and client responsibilities, balancing program goals with child and family needs, maintaining a balance between present and future orientation, managing in the face of cultural complexities, and waiting for the mother's readiness to change (Kitzman, Cole, Lorrie Yoos, & Olds, 1997). The most common challenge cited by nurses in implementing a home visiting program relates to the enrolment and subsequent retention of mothers into the program, and establishing meaningful, productive relationships (Beeber et al., 2007; Chablani & Spinney, 2011;



Domian, Baggett, Carta, Mitchell, & Larson, 2010; Jack, DiCenso, & Lofeld, 2002; Jack, DiCenso, & Lohfeld, 2005).

# **Chapter 2: Maternal Involvement in Home Visiting Programs**

## **2.1 INTRODUCTION**

This chapter reports the results of a literature review on maternal involvement in home visiting programs and discusses the theoretical framing of the study, as well as significant factors impacting on program design. The literature search sought to capture the experience of maternal involvement in the wide variety of home visiting programs presently operating in Canada, the United States, the United Kingdom and Australia. In order to obtain an overview as comprehensive as possible, the search was not limited to randomised controlled trials, and included cross-sectional study design, quasi-experimental trials, program evaluations and qualitative studies. Extensive and repeated searches of the literature were conducted over a period of three years, commencing in 2009. Keyword and MeSCH subject searches were performed in relevant databases, such as Cinahl, Medline and the Cochrane Library. Reference lists were also reviewed to identify additional publications. Papers were included regardless of the qualifications of the home visitor, program duration or program goals. Only studies reviewing home visiting programs that commenced antenatally or within 12 months of the child's birth were included.

## **2.1 BACKGROUND**

An early review of home visiting programs in the United States reported drop-out rates of between 20% and 67%, and the delivery of programs at an average of half their recommended intensity (Gomby, Culross, & Behrman, 1999). Following this report, research into home visiting diverged into two streams: evaluating the effectiveness of the intervention in achieving targeted outcomes, and the methods and processes by which this occurs. Enrolling and retaining families in services is a primary component of these processes. Furthermore, if programs are unable to retain high-risk participants, practitioners have lost an

opportunity to support and survey these families. Due to high mobility and challenges in maintaining contact, little is known about what happens to families after they drop out of home visiting programs.

The nomenclature regarding maternal involvement is varied, and it is consequently challenging to compare findings across studies. Maternal involvement, engagement and participation are often used interchangeably, as are drop out, attrition and non-completion. The term “maternal involvement” has been used to describe quantitative measures, such as duration of enrolment, number of visits received in total, duration of each visit, telephone contact, and as a ratio of number of visits intended to number of visits received. But this term has also been used in qualitative studies to describe the extent to which the mother engages in the program, completes program tasks, actively seeks out assistance, and forms a trusting relationship with the home visitor. Definitions for terms used in this thesis were drawn in part from a review by Korfmacher and others (2008), that divides program involvement into a qualitative and quantitative dimension. Thus, intensity of involvement refers to the number of visits received by the family over the course of the program, and engagement refers to the emotional quality of the family’s interaction with the program. Program attrition is described in the context of the intervention it is referring to, and the measure used by the study, such as drop out by a certain point, or program completion.

The ability to compare and contrast factors related to involvement, engagement and retention is further complicated by the diversity of home visiting programs. Factors predicting completion of a 3-month home visiting intervention may be very different to those of a 5-year program. Families who drop out of a child-health focused program because it did not meet their needs may have remained in a child maltreatment prevention program until completion. A mother who receives every visit in a program prescribing monthly visits will be defined as having a high intensity of involvement in the program. Yet the same mother in a program prescribing weekly visits may elect to only receive monthly visits, giving her a low intensity of involvement. The generalisability of the analysis reported below is greatly limited by the variation of programs included in the review.

Research investigating maternal involvement in home visiting programs is further limited by the use of only one measure of involvement at a time, and a paucity of research tracking maternal involvement over the course of the program. The ultimate goal of an intervention is

program completion. However, an opportunity to improve family outcomes is missed when program fidelity and the factors related to intensity of maternal involvement are not measured contemporaneously. Furthermore, as the maternal experience of new parenthood is dynamic, so too are the needs and enthusiasm of a mother in a home visiting program. Measurements of maternal involvement over time may assist with program planning and implementation.

## **2.2 MATERNAL FACTORS**

The relationship between maternal characteristics and intensity and duration of involvement is the most heavily investigated component of this field. Sociodemographic data is widely utilised, presumably due to its ease of collection, however these characteristics return sometimes inconsistent, or insignificant, findings. Maternal age and level of income has been found to be related to intensity and duration of involvement in mostly consistent ways. Low socioeconomic status is related to women receiving both less (Josten, Mullett, Savik, Campbell, & Vincent, 1995) and more visits (Chin, 2010). It is also related to increased likelihood of program drop out (Chin, 2010), with women of high socioeconomic status more likely to complete the program (Josten et al., 2002). In two studies exploring factors related to retention of mothers in home visitation programs, Daro and others (2003) and McGuigan and others (2003b) found that older participants are likely to remain in services longer and complete more visits, with younger mothers more likely to drop out (O'Brien et al., 2012). Josten (1995), Raikes (2006) and colleagues also report that younger mothers are likely to receive fewer visits, which are shorter. But younger mothers are also more likely to view a single postnatal home visit as unacceptable (L. M. Wen, Orr, & Rissel, 2007).

In the United States, African American status has been connected with increased duration and intensity of involvement (Daro, et al., 2003), especially where mothers were close in age and ethnicity to the home visitor (McCurdy, Gannon, & Daro, 2003). Being African American has also been associated with decreased involvement (Daro et al., 2007; O'Brien, et al., 2012). Similarly, white parents have had both a higher intensity of involvement (Raikes, et al., 2006), as well as decreased visits and earlier drop out (McCurdy, et al., 2003). Hispanic mothers consistently have stronger patterns of participation in home visitation programs (McCurdy, et al., 2003; McGuigan, et al., 2003b; O'Brien, et al., 2012), especially if they are

matched to the home visitor by age and ethnicity (McCurdy, et al., 2003). There is limited Australian research regarding ethnicity and engagement, but evaluations of sustained nurse home visiting in South Australia suggest that Indigenous mothers responded positively to Indigenous home visitors, and were more likely to engage with them (Sivak, et al., 2008). Families in which a language other than English was spoken at home is related to a decrease in acceptability of the receipt of a single, universal home visit in New South Wales (L. M. Wen, et al., 2007), whereas Early Head Start programs have found increased involvement in families where a language other than English is spoken at home (Roggman, Cook, Peterson, & Raikes, 2008).

Maternal psychological characteristics, wellbeing and functioning have been found to be related to involvement in home visiting programs. Maternal depression is positively related to program completion (Girvin, DePanfilis, & Daining, 2007). Increased involvement is also related to increased maternal attachment anxiety (McFarlane et al., 2010), maternal negative emotionality (Sharp, Ispa, Thornburg, & Lane, 2003) and maternal depression (Raikes, et al., 2006). Maternal depression is also related to increased telephone contact (Stevens, Ammerman, Putnam, & Van Ginkel, 2002), however as a secondary data analysis, researchers were unable to determine who initiated the telephone calls. The only study finding increased maternal involvement in mentally well women used a somewhat unreliable measure of mental illness (Josten, et al., 2002).

The maternal perception of the helping relationship with the home visitor has also emerged as an important factor in maternal involvement in both qualitative and quantitative analysis. A negative perception of the relationship with the home visitor is related to decreased intensity of involvement (Daro, et al., 2007), likewise a positive view of the helping relationship has been connected with increased intensity of involvement (Korfmacher, Green, Spellmann, & Thornburg, 2007). Mothers were more likely to complete the program if they had a positive view of the helping relationship (Girvin, et al., 2007) and increased program satisfaction (Damashek, Doughty, Ware, & Silovsky, 2011). However, maternal perception of the helping relationship did not moderate the positive relationship between maternal negative emotionality and increased home visits (Sharp, Ispa, Thornburg, & Lane, 2003). To some extent these findings are unsurprising, inasmuch as one would expect participants to remain in a program in which their needs were being met and satisfactory relationships with their health visitors were formed. Nevertheless, measures of the helping relationship are generally

positively skewed, indicating a need for further improvement of the psychometric properties of these instruments to explore the different components of these relationships.

A body of qualitative research consisting of maternal and home visitor perspectives has emerged in an attempt to clarify conflicting findings regarding maternal involvement in home visiting. Consistent with quantitative findings, a strong theme reflecting the importance of the therapeutic relationship on maternal decisions to remain involved in home visiting programs emerged. The impact of a trusting relationship on the client's ability to overcome feelings of vulnerability and powerlessness is a recurring theme (Domian, et al., 2010; Jack, 2003; Jack, et al., 2002). In addition, interviews of mothers being visited by lay workers (volunteers with no formal qualifications) found the mother-to-mother relationship was crucial in ensuring continued participation in services (Sheppard, Williams, & Richardson, 2004), and mothers greatly value their relationship with the health visitor in the United Kingdom (Kirkpatrick, Barlow, Stewart-Brown, & Davis, 2007). While relationship quality is a significant predictor of maternal involvement in both quantitative and qualitative studies of home visiting, as a human construct it is also one of the more difficult variables to measure and control. These findings suggest the need for further research to clarify the most influential components of these relationships, and how best to apply them to recruitment, staffing and selection of visitor qualifications.

## **2.3 PROGRAM FACTORS**

Program factors that have been found to be related to duration and intensity of involvement in home visiting include the duration of the program, content of the visits, aims of the program, amount of supervision provided to the home visitor, and if the program includes a clinic-based as well as home visiting component. The type of home visiting intervention has been found to moderate the impact infant prematurity has on the intensity of involvement, but not the impact of socioeconomic status (Chin, 2010). Program augmentation in the form of staff training and provision of goods to participants is related to program completion (Damashek, et al., 2011), as is program duration, with higher rates of completion in a 3-month program as opposed to its 9-month counterpart (Girvin, et al., 2007), and higher likelihood of retention by 12-months if the home visitor received more hours of supervision (McGuigan, Katzev, &

Pratt, 2003a). The impact of program characteristics on maternal involvement in home visiting programs reinforces the need for careful consideration in program design, and for further research to clarify how to successfully engage participants in the program.

## **2.4 PROVIDER FACTORS**

Provider factors that have been found to be related to maternal involvement in home visiting programs include the professional characteristics of the home visitor, age, ethnicity, psychological characteristics, parental status and education of home visitor. Surprisingly, increased home visitor turnover has been connected to increased duration of enrolment (Gill, Greenberg, Moon, & Margraf, 2007; O'Brien, et al., 2012). Home visitors with more experience and smaller caseloads have been shown to be associated with increased intensity and duration of maternal involvement in home visiting programs (Daro, et al., 2003) as is the use of registered nurses instead of paraprofessionals as home visitors (Olds, et al., 2002). The personality and psychological characteristics of the home visitor are also important, with increased attachment anxiety related to increased maternal involvement (McFarlane, et al., 2010), and negative emotionality related to decreased intensity of involvement. It may be easier for more robust (that is, visitors not given to negative emotions) home visitors to cope with these situations (Sharp, et al., 2003). When selecting the combination of home visitor characteristics that best enable the formation of positive relationships with families, this evidence suggests that a combination of skilled qualifications as well as appropriate personality type is needed.

## **2.5 VULNERABLE FAMILIES**

Although the majority of research into maternal involvement in home visiting services investigates programs targeted at vulnerable families, relationships in these populations are the most conflicting. This may be in part to the lack of consensus to define the term “vulnerability” which, according to Mulcahy (2004) is used to refer to families at risk of poor health outcomes, child abuse and neglect or potential suicide or self-neglect. Public health nurses often use a personal assessment framework to determine a family’s vulnerability,

which may be identified on the basis of risk factors such as the presence of domestic violence, or via more subjective methods such as personal observation and judgement e.g. the “client seems immature” (Mulcahy, 2004, p. 258). The following presents a review of literature that considers vulnerable families as those in which there are severe problems in the family giving cause for concern, but where there is not enough evidence of actual or potential harm to the child/children for social services to become directly involved (S. Taylor & James, 1987).

Overall, there appears to be a trend for vulnerable families to have increased involvement in home visiting programs, with some exceptions. As previously identified, maternal psychopathology appears to be related to both duration and intensity of involvement. Correspondingly, domestic violence also appears to be related to increased program completion (Damashek, et al., 2011) and a history of violent trauma has been found to be associated with the completion of more home visits (Stevens, et al., 2002). Having a child with a disability has also been shown to lead to higher maternal involvement (Roggman, et al., 2008), while families with an infant at a lower level of risk show maternal participation to be less (Daro, et al., 2007). At the same time, in a large retrospective evaluation of Healthy Families America (Daro, et al., 2003), mothers with an increased risk profile did not receive decreased visits than those mothers who were not identified as being at increased risk. Indeed, more recent research into the Healthy Families America program has found decreased levels of involvement in mothers with high levels of available support (Daro, et al., 2007). This may be because mothers with more available assistance from family and friends do not have the need for the intense involvement and support provided by home visiting programs. In contrast to these findings, research has found maternal substance misuse (Damashek, et al., 2011), decreased community health, increased maternal isolation and high levels of community violence (McGuigan, et al., 2003b) to be associated with decreased rates of program completion. Decreased intensity of involvement is also related to infant prematurity (Chin, 2010). While all of the above characteristics to some extent classify families as “vulnerable” or “at-risk”, the lack of agreement in findings suggests that they may operate independently of one another. For example, having a child with a disability is a primary risk factor for abuse, as is maternal misuse of drugs and alcohol. Families in which these risk factors are present in exclusion of each other may function in very different ways, and have very dissimilar motivations for participating in early interventions. For this reason, it may be impossible to ever gain a true consensus as to how vulnerable families behave.



Instead, programs that focus on addressing individual risk factors, or the presence of multiple risk factors in one family, may be a crucial factor to engaging participants.

## **2.6 MATERNAL INVOLVEMENT AND PROGRAM OUTCOMES**

Home visiting programs are designed based on the assumption that the program will be implemented with fidelity, which includes the participants receiving the intended number of visits (intensity of involvement) and remaining enrolled until the program completion. When clients participate with decreased intensity and duration of involvement, the extent to which they will benefit from the program is affected, and results reported in evaluations and randomised controlled trials may be diluted. In spite of this, research examining the relationship between intensity and duration of involvement and program outcomes is relatively sparse. This could be attributed to the status of maternal involvement as a recent field of interest, or due to difficulty in assessing program outcomes in participants who have dropped out. Attrition from home visiting programs has been linked to participants who have a transient lifestyle, or who are prematurely discharged by coordinators due to an inability of the home visitor to maintain contact with them. Thus, follow-up data on such families can be difficult to obtain.

The quality and quantity of maternal involvement in home visiting programs has consistently been found to be related to program outcomes, with one exception. The program outcomes most often associated with maternal involvement are responsivity and scores on the Home Observation for Measurement of the Environment (HOME) Scale. Maternal responsivity is the mother's prompt, contingent and appropriate behaviour towards the infant during times of distress and non-distress (Bornstein & Tamis-LeMonda, 1989), while HOME total scores are an overall measure of parenting and the quality of the home environment (see Chapter 3). Maternal engagement has been found to positively relate to maternal attachment and responsivity to the infant (Heinicke et al., 2000), and intensity of involvement is positively correlated with HOME scores and improved child development (Raikes, et al., 2006), higher IQ for the child (Ramey et al., 1992), and HOME scores and parent supportiveness of the infant (Roggman, et al., 2008). A doula support intervention in the United States found some positive relationship between maternal involvement and outcomes, which was moderated by

the maternal relationship with the father, maternal vocabulary and immature mothers (X. Wen, Korfmacher, Hans, & Henson, 2010). A combined home visit and clinic program found service dosage to be unrelated to the number of child protection notifications (Mullins, Bard, & Ondersma, 2005), however child protection notifications are a questionable measure of intervention effectiveness as discussed in Chapter 1. Given these findings, program effectiveness clearly relates to the ability of the program to recruit and engage families, with both quality and quantity of involvement crucial to program outcomes. This relationship has not been explored in nurse-led programs that target the prevention of child abuse and neglect, or in Australian home visiting programs.

## **2.7 AUSTRALIAN CONTEXT**

Australian literature concerning the role and impact of community and child health nurses is limited, and is focused on the changing structure of services amidst government policy and skilling requirements (Barnes, MacPherson & Senior, 2006). Whilst it would appear that child community nursing in Australia is moving towards a psychosocial support model (Briggs, 2006), there is little evidence that training and service structure is reflecting this (Kruske, Barclay, & Schmied, 2006). Specialist training of community and child health nurses varies markedly across the country, and provides inadequate preparation of some of the core skills required in the workforce (Kruske & Grant, 2012). Research has identified issues regarding nursing application of the principles of family partnership, continuity of care, provision of resources to provide sustained nurse home visiting and conflicting demands on the nursing role (Kruske, et al., 2006). These issues are likely to impact on parental engagement in services; however there is currently no literature to support a possible link between these closely interdependent aspects of home visiting.

No studies could be found that investigated the phenomenon of maternal involvement in Australian nurse home visiting programs, and many evaluations fail to report the characteristics of those who were unable to complete the intended number of visits. The 1996 audit of Australian Home Visitor Programs (Vimpani, Frederico, & Barclay, 1996) did not identify maternal involvement as a contributor to the success or failure of a program. It was identified in the context of problems associated with evaluating the effectiveness of home

visiting programs as a preventive strategy for child abuse and how home visitors know a program is not working (Vimpani, et al., 1996). By not including involvement as a priority in the subsequent framework or in the audit's recommendations, the report effectively placed this issue as a low priority when implementing or evaluating home visiting programs in Australia. A recent overview of Australian universal maternal and child health services suggested that improved collaboration, and ongoing support for nurses, in the form of increased supervision and ongoing education, is essential to improving the engagement of vulnerable families in services (Schmied, et al., 2008).

The higher program retention rate reported in Australian trials (Armstrong, et al., 1999; Armstrong, et al., 2000; Fraser, et al., 2000; Kemp, et al., 2008), could explain the lack of interest in local research into intensity or duration of maternal involvement compared to that observed in the international literature. At 6-week follow-up of the Family Care RCT in Queensland, the retention rate was 96% (Armstrong, et al., 1999), with 76% retention at 12-months (Fraser, et al., 2000). Participants in the intervention group who did not complete the program were more likely to be young, to move house frequently, to have poor parental attachment to the infant and a low maternal sense of competence (Fraser, et al., 2000). These results are in conflict with data from the MESCH trial in New South Wales.

Late presentation for antenatal care and an income deriving from part-time employment, pension or benefits were significantly associated with loss to follow-up in the MESCH program (Kemp, et al., 2008). Women who identified themselves as being abused as a child were significantly less likely to be lost to follow-up at 18-months (Kemp, et al., 2008). Whilst rates of retention for the trial compare favourably with other studies into maternal involvement, the authors reported being disappointed with retention rates of 86% at 12-months, 74% at 24-months and 62.5% at 30-months (Kemp, et al., 2008). These high rates of retention should be interpreted with caution, as they represent participants retained in the randomised controlled trial only. Information regarding participant retention, and intensity of maternal involvement in the actual home visitation program was unable to be obtained.

In spite of this recognition of the importance of retention and acknowledgement of the need to understand any fundamental differences between those who complete the program and those who do not, there is no suggestion for further research into maternal involvement in Australia, highlighting the lack of acknowledgement of its importance. Furthermore, perhaps

due to complications when conducting research with participants for whom English is not a first language, there is little data regarding the relationship between ethnicity and attitudes and access to home visiting in mothers from non-English speaking backgrounds. Additionally, Riggs and others (2012) have documented the challenges in accessing refugee families, both for a universal home visit and further child health clinic care. Little is known about factors affecting access to home visiting in Australia in general. One retrospective study found that culturally and linguistically diverse populations were less likely to receive a single, universal home visit by a nurse or volunteer (L. M. Wen, et al., 2007), and when they were visited, were more likely to find the visit “uncomfortable” or “very uncomfortable”. Other factors associated with poor acceptance of home visits were households that were not smoke-free, younger mothers, and fathers with lower education. Qualitative evaluations found Indigenous families strongly supported an intensive nurse home visiting program in South Australia, however these results may be positively skewed as only long-term participants were interviewed (Sivak, et al., 2008). These findings have important implications for Australian program development, accessibility to programs and meeting the needs of minority populations.

## **2.8 THEORETICAL FRAMEWORK**

The theoretical bases to home visiting studies are often implied, rather than explicitly stated. This has been identified as a potential limitation to study quality and analysis (McNaughton, 2004). This thesis draws on Bronfenbrenner’s ecological systems theory (1980) and McCurdy and Daro’s Integrated Theory of Parental Involvement (ITPI) (2001) in family support programs as a theoretical framework. Usually implemented as the framework when designing home visiting interventions, interpretation of ecological theory was adapted for the present study to reflect the variety of influences on the duration and intensity of maternal involvement in the Queensland Family Care home visiting program. An ecological perspective broadly encompasses physical, social, cultural and historical aspects of context, as well as behaviours and attributes of the person within (McLaren & Hawe, 2005). Ecological systems theory is a process-person-context model that highlights variability in developmental processes as a function of the characteristics of the person and the environment (Damon & Lerner, 2006). Thus, rather than exploring maternal involvement in

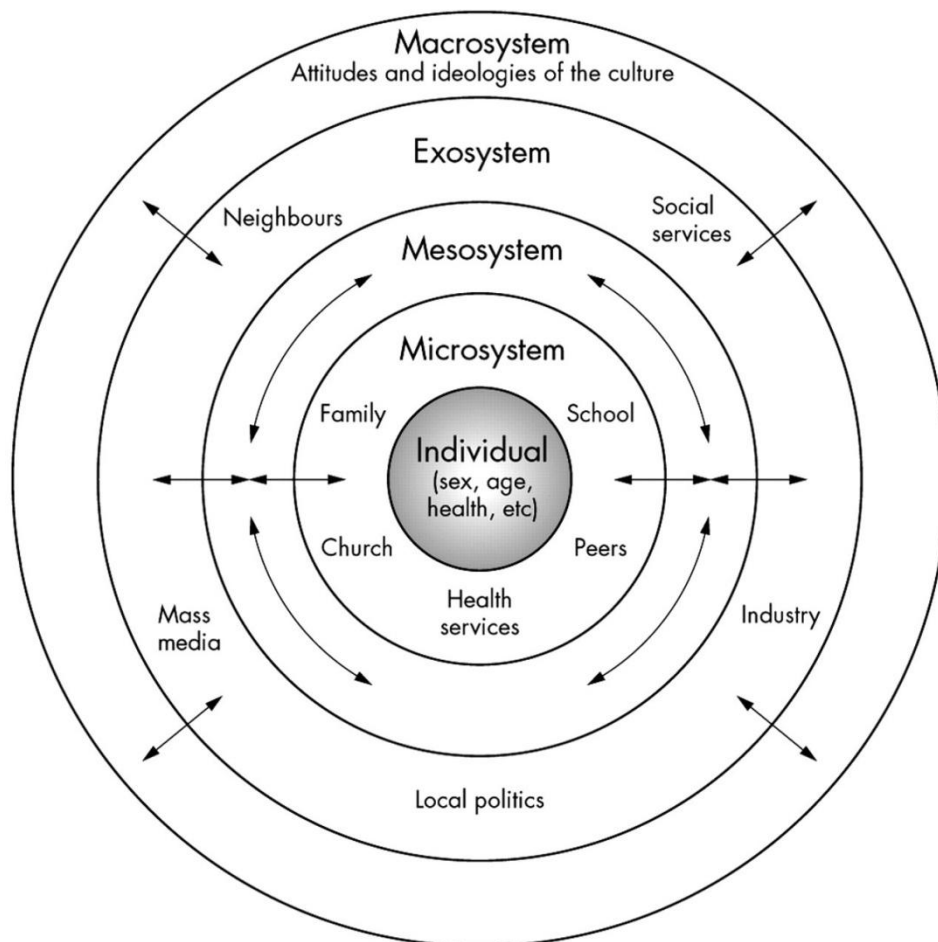
the Queensland Family Care home visiting program as an independent construct, an ecological framework enables an examination of the decisions and behaviour of the mother in the context of her environment, that is, how the intensity and duration of her involvement is influenced by her immediate family, the nurse home visitor, community health services and cultural norms.

Up to this point, many investigations of maternal involvement in home visiting programs have been limited to exploring only one aspect of influence, usually either maternal, provider or program factors. As the present study is embedded in an ecological framework, maternal involvement in the Queensland Family Care program is able to be explored as a result of the complex interplay of maternal and program factors. McCurdy and Daro (2001) developed the ITPI in recognition of the absence of a comprehensive theory to specifically address maternal enrolment and retention in home visiting programs. Informed by the ecological model, the empirically derived ITPI proposes that intention to enrol, enrolment, and subsequent retention in home visiting programs are dependent on the complex interaction between individual, program, provider and neighbourhood characteristics. The ITPI was the first attempt to propose a causal model for involvement in voluntary support programs on parenting (McCurdy & Daro, 2001). The present study is also shaped by the theoretical model of maternal engagement with public health nurses and family visitors proposed by Jack and others (2005). This model emphasises the importance of the development of a trusting relationship between the client and home visitor, and the potential of this relationship to overcome maternal feelings of vulnerability and powerlessness to successfully engage in the program.

### **2.8.1 Ecological Systems Theory**

The ecological framework (1980) (Figure 1) informs the design of many home visiting programs. This framework emphasises studying children not just as individuals, but within their context (Olds, 2008). The premise that children develop in the context of family-type relationships, genetic endowment and other components of the environment (Klein & White, 1996) has influenced many initiatives into early childhood intervention and subsequent research. Bronfenbrenner theorised that the individual is embedded in a microsystem, mesosystem, exosystem, and macrosystem (Klein & White, 1996). The microsystem is the

pattern of activities, roles and relations experienced by the developing person in a setting with particular physical and material characteristics. A system of microsystems, the mesosystem is the interrelationship between two or more settings in which the developing person participates (Bronfenbrenner, 1980). In broadening spheres of influence, the exosystem refers to settings in which the developing person is not a participant, but affect, or are affected by, what happens in the developing person's setting (Bronfenbrenner, 1980). Finally, the macrosystem refers to consistencies in the form and content of lower-order systems that exist, or could exist, at the level of the subculture or culture as a whole (Bronfenbrenner, 1980).



**Figure 1.** Diagrammatic representation of Bronfenbrenner's ecological framework. Reproduced from McLaren, L., & Hawe, P. 2005. Ecological perspectives in health research. *Journal of Epidemiology & Community Health*, 59 (1), 6-14

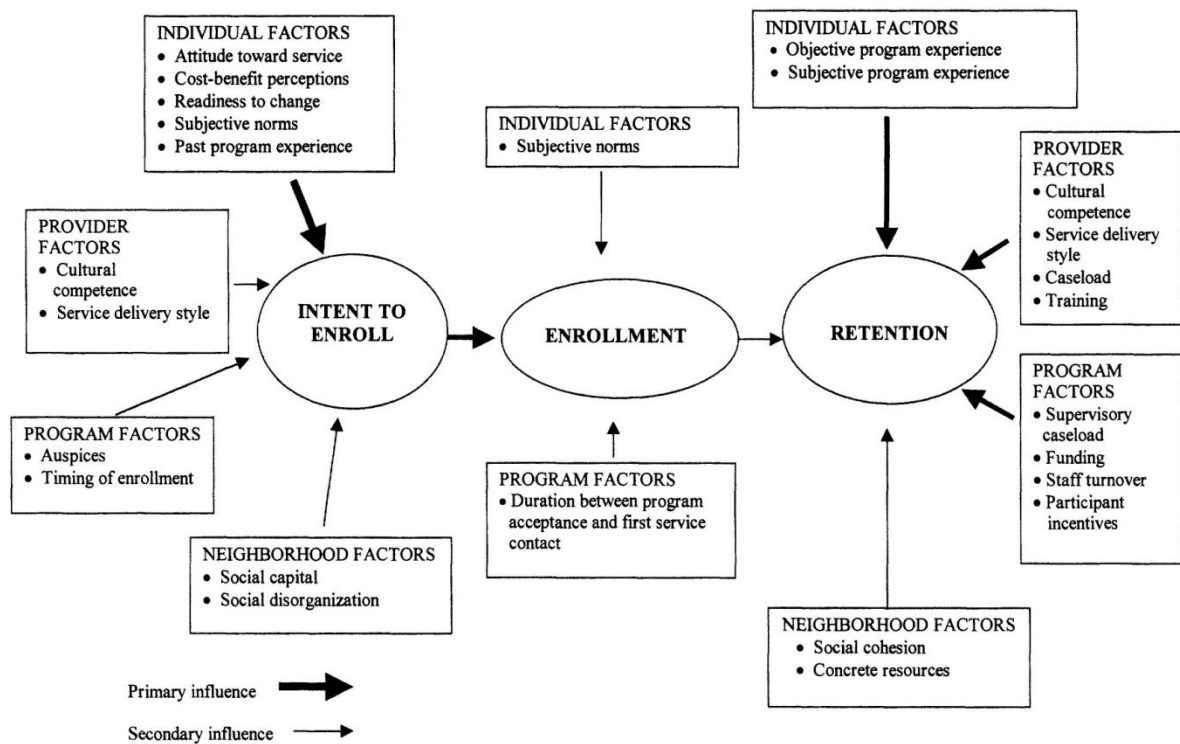
An assumption of this study is that changes in parental behaviour, and its influences, will subsequently result in improved family and infant outcomes. Rather than attempting to target only certain aspects of the parent's or infant's development, and doing this in a clinical setting or by focusing on a particular aspect of their growth and development, home visiting programs are usually formulated in the context of ecological systems of human development. These programs operate within the influence of parents, relatives, friends, the neighbourhood and the cultural background of the family. Ecological models of child maltreatment emphasise that the multiple determinants of parenting behaviour interact to create complex dynamic family systems (Cicchetti & Toth, 2005), leading to greatly varied combinations of problems among participants in early intervention. Furthermore, ecological systems theory acknowledges that decisions of participants to engage in the home visiting program are made in the context of immediate family relationships, are mediated by the home visitor, the program the visitor operates within, and the government service and policy providing the program.

It is in this context that the present study seeks to explore the phenomenon of maternal involvement. A growing body of research is increasingly suggesting that it is not a purely maternal decision to engage or disengage with services, but a behaviour that is influenced by the mother's background, her perceived role within the family and the perceived needs of the family, past experiences and the community in which the home visits take place (McCurdy & Daro, 2001). These factors do not by themselves integrate into a coherent and testable theory that is specific to maternal involvement and attrition in home visiting programs. Whilst relevant to nurse home visiting, ecological theory is limited in its capacity to provide a conclusive framework to explore and explain engagement in these interventions. McCurdy and Daro (2001) sought to address the need for a conceptual framework by proposing a theory of family involvement in family support programs.

### **2.8.2 Integrated Theory of Parental Involvement**

The ITPI (Figure 2) departed from previous retention-focused research by also including enrolment in the final model. It incorporated four distinct, but overlapping categories of influence on engagement in a maternal home visiting program: individual characteristics, provider attributes, program characteristics and neighbourhood context (McCurdy & Daro,

2001). These categories of influence may be likened to the ecological model, utilising concentric circles to describe levels of influence on maternal behaviour in early interventions. The ITPI has served as the basis for research in a number of fields, including utilisation of community/clinical services (Spielberger & Lyons, 2009), evaluation of a universal parent training program (Eisner & Meidert, 2011), engaging hard to reach families (Cortis, Katz, & Patulny, 2009) and maternal home visiting programs (Damashek, Bard, & Hecht, 2012; Damashek, et al., 2011; McCurdy et al., 2006; McGuigan, et al., 2003a, 2003b; Raikes, et al., 2006).



**Figure 2.** Diagrammatic representation of the Integrated Theory of Parental Involvement. Reproduced from McCurdy, K., & Daro, D. 2001. Parent involvement in family support programs: An integrated theory. *Family Relations*, 50 (2), 113-121.

McCurdy and Daro (2001) describe the multi-level influences on three stages of engagement: intention to enrol, enrolment, and retention. Attitudes of the parents, service delivery style, level of social organisation, program experience, home visitor training and social cohesion are all identified as potential influences on these three stages of parental involvement



(McCurdy & Daro, 2001). Furthermore, the model proposes that maternal readiness to change will be a primary influence on program involvement, in conjunction with the beliefs of others in the client's immediate sphere of influence. Program and provider factors are posited as primary influences on retention in the program, with maternal and neighbourhood characteristics as secondary influences. The current study seeks to utilise the Integrated Theory of Parental Involvement (Figure 2) in an attempt to determine factors related to varied levels of maternal involvement in the Family Care home visiting program.

## **2.9 CONCLUSION**

Child maltreatment is a significant problem in Australia and throughout the world. Given the extensive consequences of its occurrence and high rates of recidivism, early intervention programs have been identified as the most effective means of addressing this issue. When embedded within a universal framework, targeted programs such as home visiting are effective in improving family functioning and reducing the occurrence of child abuse and neglect. This review of the literature demonstrated that unfortunately, such programs experience unacceptably high drop-out rates, and families who remain enrolled usually receive the intervention at a far weaker intensity than intended. In spite of a developing interest in explaining why and for whom this is the case, findings regarding who engages most successfully in these programs is inconclusive. Furthermore, there is little research investigating maternal involvement in nurse home visiting programs to prevent child abuse and neglect, and no Australian research regarding maternal involvement in any type of home visiting program. In spite of early, consistent findings that intensity of involvement is positively linked to program outcomes, this relationship is rarely investigated, and has not yet been explored in an Australian context. The present study seeks to explore such relationships in the context of an ecological framework and the ITPI.

# **Chapter 3: Research Design**

## **3.1 INTRODUCTION**

The review of literature in Chapter 2 revealed that maternal involvement in perinatal health services and retention in follow-up community services such as nurse home visiting programs in Australia have received little research attention. International research on service involvement is also limited, and predominantly investigates programs that differ from those in Australia by target population, methods, duration, and qualifications of the home visitor. Moreover, few research studies have examined the relationship between maternal involvement and program outcomes. This chapter describes the research approach used to examine the extent to which maternal characteristics are associated with intensity and duration of involvement in a nurse home visiting program, and to investigate the relationship between intensity and duration of involvement and program outcomes. Because the method consists of a chart audit and secondary analysis of data from a previously conducted randomised controlled trial, a brief description of this original trial and its methods are also outlined in this chapter.

## **3.2 RESEARCH QUESTIONS AND RESEARCH DESIGN**

Selected maternal and program characteristics were examined for their relationships with intensity and duration of program involvement (see section 3.5). The program outcomes investigated were representative of parenting style and quality of the home environment (see section 3.5). In order to test these relationships, the following research questions were formulated:

- A. Is maternal enrolment in an augmented nurse home visiting program related to intensity and duration of maternal involvement?

- B. Are maternal antenatal characteristics, and changes in maternal wellbeing over time, associated with intensity and duration of maternal involvement?
- C. Are intensity of maternal involvement and changes in maternal depression associated with suitability of the home environment and maternal responsiveness to the infant?

This study is a secondary analysis of data previously collected as part of a randomised controlled trial of an intensive nurse home visiting program in South East Queensland (referred to from here as the “original trial”) (Kowalenko, 2007). Secondary analysis of data has been used previously to good effect in this field (Josten, et al., 1995; L. M. Wen, et al., 2007) and as a randomised controlled trial to examine maternal involvement was beyond the scope of this study, a secondary analysis of data from the original trial with analysis of further primary data on home environment and maternal wellbeing was used. The Family Care nurse home visiting program operated out of a child health clinic, which served as a base for staff and for patient records. In addition to data from the original trial, the number of visits participants received and the duration of enrolment in the program were obtained from a chart audit on-site at the Ipswich Child Health Clinic.

### **3.3 RESEARCH DESIGN – THE ORIGINAL TRIAL**

The original trial from which data were extracted recruited 42 women in the antenatal period and randomised them to receive either an augmentation of the standard care home visiting (intervention) or standard home visiting (control). The augmented program received by the intervention group consisted of regular Family Care visits as well as a program called Parents Under Pressure – Babies described below. Home visits to the intervention group were conducted in the antenatal and postnatal period. The control group received the standard Family Care program (described below) offered to vulnerable antenatal populations in the South East Queensland health service district at the time. Of these 42 participants, only 32 were included in analysis of the original RCT. Under an expectation of ongoing funding, participant recruitment and trial implementation continued beyond what could be included in analysis in time for thesis submission of the principal investigator. A brief description of the original trial follows.

### **3.3.1 Family Care**

The Family Care (FC) program is an established nurse home visiting program operating from multiple sites throughout Queensland that aims to reduce the incidence of child abuse and neglect by targeting families at-risk for abuse and neglect of children under 5 years. In the health service district in which the original study was conducted, families are eligible if the mother has a history of mental illness, a substance use disorder, or is in a relationship featuring intimate partner violence. The program may also include families who do not initially fulfil these criteria, yet exhibit other extenuating circumstances that place children at risk for child abuse and neglect. Antenatal visits are commenced by a registered nurse and continue until the infant is 12-months old. The visits may continue for up to 2 years if the mother or infant identifies as Aboriginal or Torres Strait Islander.

With the aim of preventing child abuse and neglect, structured child health nurse visits were offered to the family weekly from birth. The focus of the visits was to: (i) establish a relationship of trust with the infant's family; (ii) enhance parenting self-esteem and confidence by reinforcement of success; (iii) provide anticipatory guidance for normal child development problems such as crying or sleep behaviour variants; (iv) promote preventive child health care; and (v) facilitate access to appropriate community services. Secondary program goals were to: improve infant health; improve parent and family functioning; enhance social connectedness; and ensure maximum attachment and quality of home life for the infant (Armstrong, 2000). A weekly case conference was held with the nurse home visitor, social worker and paediatrician to assess the family's needs and plan the family's care (Armstrong, et al., 1999). Recognising the challenges in detecting differences in low incidence outcomes such as child abuse and neglect, outcome measures representing protective factors for parenting skills and the maternal-infant relationship were selected. Using such measures as proxies to establish the effectiveness of child maltreatment prevention programs has been validated in the past (Scott & Higgins, 2011).

### **3.3.2 Parents Under Pressure – Babies and Family Care**

The purpose of the original trial was to evaluate the effectiveness of an innovative, intensive treatment program delivered by a psychologist as opposed to standard nurse home visiting. Initially implemented as an intervention for at-risk families with children aged 2 to 6 years in Queensland (Harnett & Dawe, 2008), the Parents Under Pressure (PUP) program was trialled for the first time in an antenatal and neonatal population in the original trial. This application of the program was called Parents Under Pressure - Babies or PUP B. Strategies included in the PUP program aimed to reduce family stress, promote self-efficacy, improve social contacts and involvement in community activities, stimulate parent-child interactions, and promote preventive health behaviour of parents for their infants (Kowalenko, 2007). Participants in the intervention group received visits commencing in the antenatal period up until the infant reached approximately 12-weeks old.

### **3.3.3 Participants**

Recruitment for the original trial occurred in the antenatal clinic of a major urban teaching and tertiary referral hospital in South East Queensland in 2006. Families were eligible for the study if the mother was between 16 and 24-weeks gestation and also had a history of mental illness, or was in a relationship characterised by intimate partner violence or currently misused alcohol or other drugs (Kowalenko, 2007). In order to maximise the generalisability of the study, women with a history of psychotic illness who were not currently psychotic and women for whom English was a second language and did not require a translator were included in the study.

The original trial used a randomised controlled trial design, with random allocation into the intervention and control groups. Allocation concealment was used so that there was no prediction for treatment allocation. Randomisation occurred following the initial assessment conducted by an independent researcher (Kowalenko, 2007). Further data were collected in the participant's home at 6-weeks, 12-weeks and 6-months postnatal.

## **3.4 RESEARCH DESIGN – THE CURRENT STUDY**

### **3.4.1 Chart Audit**

The candidate collected data from medical records held at the Ipswich Child Health Clinic under the supervision of the principal supervisor. Data from the clinic charts were recorded into a notebook and later entered into the new PASW (SPSS) Statistics 18 dataset. Where discrepancies existed between the original study participant and home visitor data, the number of visits as documented in the patient chart was used as the reference standard for data entry and analysis, due to the possibility of missing data or participant recall bias.

Under permission from the chief investigator of the original trial (see Appendix A), West Moreton Health Services District Ethics Committee (see Appendix B) and the University of Sydney Ethics Committee (see Appendix C), the candidate was able to cross-check de-identified questionnaires with a master list of participants. The master list contained the full names of participants, as well as their identification numbers for the original trial. This information was used to obtain the appropriate medical records from the child health clinic. Participants of the original trial had completed a questionnaire at three time-points (6-weeks, 12-weeks and 6-months) in which they would report how many nurse home visits they received in the preceding period. Nurse home visitors also recorded in the patient chart each time a home visit occurred. Therefore, maternal reporting of the number of visits received (original trial data) could be cross-checked with data from nurse reports in the clinic charts.

### **3.4.2 Secondary Data Analysis**

Secondary analysis of data from the original trial was conducted with permission from the authors of the original study as well as the West Moreton Health Service District Human Research Ethics Committee and the University of Sydney Human Research Ethics Committee. All raw data from the original trial were entered into a clean database to create a new dataset. The new dataset also included additional data from the chart audit (see above) on home environment (as measured by the HOME scale) and maternal wellbeing as measured

by the Edinburgh Postnatal Depression Score (EPDS) and Child Abuse Potential Inventory (CAPI). Data were entered into PASW (SPSS) Statistics 18, and then entered a second time in order to cross-check for missing values and data entry errors.

## **3.5 MEASURES**

A list of measures used in the current study and the time points at which data were collected are summarised in Table 1. These measures are also described below.

### **3.5.1 Sociodemographic Details and Inclusion Questionnaire**

Demographic details were collected from study participants using the Brisbane Evaluation of Needs Questionnaire (BENQ) (see Appendix F; Appendix G). This questionnaire identifies sociodemographic variables and maternal risk factors for child maltreatment, and was collected at the initial antenatal assessment of all participants in the original trial.

Data regarding domestic violence and financial stress were collected from the BENQ. A participant was categorised as experiencing domestic violence if the respondent answered “yes” to any of the following dichotomous items: “Do you experience any form of abuse from a partner or family member at home such as: (i) physical abuse; (ii) damage to property; (iii) verbal abuse; (iv) threats to hurt you; (v) allowed no money; (vi) being kept away from family and friends; and (vii) other (please specify)”. The respondent was also coded as experiencing domestic violence if they reported being hit, slapped or otherwise physically hurt in arguments at home in the next question. This test was developed specifically for Family Care, due to a lack of appropriate screening tools available at the time of program development (Fraser, 2000).

A variable to measure financial stress was developed from several items in the questionnaire. Financial stress was determined by positive responses to the statements “often or always worried may not have food for family” or “often or always unable to make ends meet”. This measure was used instead of traditional income brackets, or income source, as it has been

found in similar populations that stress related to financial disadvantage is not necessarily linked to low income and that regardless of income level, women in the postnatal period report financial concerns (Fraser, 2000).



**Table 1:** Summary of Measures (antenatal, 6-weeks, 12-weeks and 6-months)

Domain	Measured Outcome	When Measured	How Measured	How Administered	Comment
Sociodemographics/risk factors	Intake Data	Antenatal assessment	Brisbane Evaluation of Needs Questionnaire	Self-report	Routinely used on intake to Family Care
Maternal Wellbeing	Maternal mood/depression	Antenatal, 6-weeks, 12-weeks, 6-months	Edinburgh Postnatal Depression Scale	10-item self-report	Psychometric properties established
Child Abuse Risk	Physical child abuse risk	Antenatal, 6-weeks, 12-weeks, 6-months	Child Abuse Potential Inventory	160-item self-report	Psychometric properties established
Parenting Skills	Quality of the home environment	6-weeks, 12-weeks, 6-months	The HOME Inventory: Total Score	Home observation	Psychometric properties established
	Maternal attachment to the infant	6-weeks, 12-weeks, 6-months	The HOME Inventory: Responsivity Subscale	Home observation	Psychometric properties established
Maternal Involvement	Intensity of involvement in the program	6-weeks, 12-weeks, 6-months	Number of visits received by each assessment	Self-report, chart audit	
	Duration of involvement in the program	6-months	Enrolled/not enrolled at 6-months	Chart audit	

## **3.5.2 Maternal Wellbeing**

### **3.5.2.1 Maternal Depression**

The Edinburgh Postnatal Depression Scale (EPDS) (see Appendix D) is a ten-item self-report scale collected from mothers at enrolment (antenatally), and postnatally when the infant is aged 6-weeks, 12-weeks and 6-months. Scores may range from 0 to 30, with higher scores suggestive of maternal depression. The EPDS is the most widely used screening tool for postnatal depression, and has been validated for use in a number of contexts, including in an Australian sample (Boyce, Stubbs, & Todd, 1993), with Aboriginal and Torres Strait Islander women (Campbell, Hayes, & Buckby, 2008) and during pregnancy (Bergink et al., 2011). In a validation study by Bergink and others (2011), the reliability values of the EPDS indicated by Cronbach's  $\alpha$  coefficient in the first, second and third trimester of pregnancy were 0.82, 0.83, and 0.84, respectively (Bergink, et al., 2011).

It has been recommended that a lower than usual cut-off for maternal depression be applied when the EPDS is used in an antenatal population (Bergink, et al., 2011). A score of  $\geq 12$  is suggestive of a possible mood disorder. Thus, as a participant's score increases, their mood decreases. In the validation for an Australian sample, the sensitivity of the EPDS was 100%, specificity was 95.7% and the positive predictive value was 69.2% (Boyce, et al., 1993). For the purposes of this study, the score was classed as both a continuous and categorical variable (elevated or not elevated), dependent on the type of analysis. As a categorical variable, the status of elevated or not elevated was determined by a score of greater than or equal to 12, or less than 12, respectively.

### **3.5.2.2 Child Abuse Risk**

The Child Abuse Potential Inventory (CAPI) (see Appendix E) is a self-report questionnaire utilised to assess maternal child abuse potential in the antenatal period and at the time points of infant age 6-weeks, 12-weeks and 6-months. The CAPI is a 160-item questionnaire presented in an agree/disagree format, within which is a 77-item Abuse Scale. An elevated abuse score suggests the respondent shares characteristics with known, active child abusers.

As recommended by Milner (1986), the more conservative cut-off score of 215 was employed in the present study to ensure fewer false positives. In the social services setting, high abuse scores are more likely to represent abuse than low abuse scores are to represent non-abuse (Milner, 1986).

The CAPI has been tested for reliability, internal consistency, temporal stability, construct validity, predictive validity and incremental validity (Milner, 1994), and has been used as an evaluation measure in a number of treatment and prevention programs (Chaffin, Bard, Hecht, & Silovsky, 2011; Dawe & Harnett, 2007; Silovsky et al., 2011). The 77-item Abuse Scale has high internal consistency (i.e. .92-.96 for controls and .95-.98 for abusers) and accurate predictive validity, with overall correct classifications of up to 92.3% of abusers and 100% of controls correctly identified (Milner, 1986). High scores on the CAP Inventory have been shown to be highly correlated with subsequent abuse, and later neglect (Milner, Gold, Ayoub, & Jacewitz, 1984; Milner, Gold, & Wimberley, 1986), providing support for the predictive validity of the instrument.

Whilst the CAPI is most appropriate for use in the screening of individual clients, a number of validation studies indicate the CAPI can not only discriminate between groups of physical abusers, neglectful parents, at-risk parents and comparison subjects, it can also discriminate on an individual basis between physical child abusers and matched comparison subjects (Milner, 1986). For the purposes of this study, the score was classed as both a continuous and categorical variable (elevated or not elevated), dependent on context. As a categorical variable, the status of elevated or not elevated was determined by a score of greater than or equal to 215, or less than 215 respectively.

### **3.5.4 Parenting Skills**

#### **3.5.4.1 Suitability of the Home Environment**

The Home Observation for Measurement of the Environment (HOME) Inventory: infant-toddler version (Bradley & Caldwell, 1988) was conducted at 6-weeks, 12-weeks, and 6-

months postpartum during the original trial. As reviewed by Totsika and Sylva (2004), HOME has been used to evaluate interventions, and has been used extensively in research to reveal relationships between several aspects of the home environment and children's developmental outcomes. This tool aims to measure maternal attachment to the infant and the suitability of the home environment for an infant. Information needed to score on the 45-item inventory is obtained through a combination of observations and semi-structured interviews. For the present study, HOME total scores (out of 45) and responsivity subscale scores (out of 10) were used, with higher scores reflecting an appropriate home environment and more supportive maternal interactions with the infant. In a validation study of HOME, Cronbach's alphas were .84 for the infant-toddler version and Kappa statistics for inter-rater reliability between teams of paediatricians and research assistants ranged from .76 to 1.0 (Caldwell & Bradley, 1984). Internal consistency for HOME total scores (Kuder-Richardson-20) was 0.89 (Caldwell & Bradley, 1984).

The HOME Inventory is a standardised measure of the quality of the home environment using binary choice items clustered in to six subscales of parental responsivity, acceptance of child, organisation of the environment, provision of play materials, parental involvement with the child and variety of stimulation. In developing the scale, maternal interactions, stimulation and home safety standards were observed and measured in family homes where natural behaviour between parent and infant could be observed. Mothers were engaged in conversation about the infant's routines, family activities, and behaviour patterns to gain as accurate a description of home life as possible (Bradley & Brisby, 1990).

#### **3.5.4.1 Maternal Attachment to the Infant**

Maternal responsivity is the mother's prompt, contingent, and appropriate behaviour toward the infant during times of non-distress activities and towards the infant's distress (Bornstein & Tamis-LeMonda, 1989). Two principal sub-dimensions of responsivity are indexed by the parental responsivity subscale of HOME: verbal responsivity and emotional responsivity. Since initial development, several researchers have studied the psychometric properties of the subscales of the infant-toddler version of HOME and the internal consistency of the responsivity subscale. Caldwell and Bradley (1984) reported the Kuder-Richardson-20 (a measure of internal consistency) of the HOME scale at 0.72. When measured as a subscale of

the HOME Inventory, responsiveness has also been shown to be related to a variety of developmental and health outcomes such as intellectual competence and failure to thrive, and to maltreatment (Bradley, 1989). The HOME and its responsivity subscale scores were categorised as continuous variables for analysis.

### **3.5.5 Maternal Involvement**

The aim of the current study is to examine the extent to which maternal characteristics are associated with the intensity and duration of involvement in a nurse-led home visiting program, and to investigate the relationship between intensity and duration of involvement and program outcomes. One of the reasons for the complexity of the literature regarding involvement is that there is no consensus of what measures it involves. It has been suggested that there are two types of involvement – quality and quantity (Korfmacher, et al., 2008). It was beyond the scope of this study to examine the quality of maternal involvement (also known as engagement), thus a comprehensive measurement of quantity of involvement has been used.

The Integrated Theory of Parental Involvement (ITPI) is used as a framework for this study to determine factors related to varied levels of maternal involvement in the Family Care home visiting program. The ITPI describes the process of maternal involvement as consisting of three stages: intent to enrol, enrolment and retention (McCurdy & Daro, 2001). As a secondary data analysis, the current study was unable to examine factors related to maternal intention to enrol in the FC program, and could only investigate the relationship between maternal and program factors, enrolment and retention. However, this is not expected to limit the generalisability of findings, as offers of the FC program in South East Queensland are generally well received in the antenatal population, with a waiting list operating at times.

The use of a dichotomous variable to measure program completion (completed or did not complete the program) is common in the maternal involvement literature (Damashek, et al., 2011; Duggan et al., 2000; Josten, et al., 1995; Josten, et al., 2002; McFarlane, et al., 2010; McGuigan, et al., 2003a, 2003b; Navaie-Waliser et al., 2000; Tandon, Parillo, Mercer, Keefer, & Duggan, 2008). However, this limited definition of involvement may be a

contributing factor to the confusion regarding the direction of influence of explanatory variables, and the strength of these relationships. A more comprehensive measure of involvement has been suggested, to thoroughly capture the lived experience of participants. This has led to the simultaneous use of multiple measures of involvement, such as the length of enrolment combined with number of home visits and the duration of each visit (Daro, et al., 2003; Gill, et al., 2007; Korfmacher, et al., 2007; McCurdy, et al., 2003; Olds & Korfmacher, 1998; Raikes, et al., 2006; Roggman, et al., 2008; Wagner, Spiker, Inman Linn, & Hernandez, 2003; X. Wen, et al., 2010).

In consideration of these factors and available information in the data set, intensity of involvement was measured in this study by the continuous variable of total number of home visits by the infant age of 6-weeks, 12-weeks, and 6-months. Duration of involvement in the home visiting program was defined for this study as whether or not the participant was still enrolled in the program at 6-months. This end-point was chosen for three reasons: it was the final data collection point for maternal wellbeing and program outcome variables in the original randomised controlled trial; as the halfway point of the twelve month FC program it provides a useful proxy for long and short-term involvement; and after this point, the extent of participant attrition made any further analyses untenable.

Determining duration of enrolment in a program is not always straightforward. For the current study, a participant was coded as having dropped out at 6-months if there was documentation in their chart of a multi-disciplinary case conference terminating enrolment. This took place if the participant refused further home visits, contact was lost, or the participant left the health district offering the home visiting program. However, some participants were documented as not having received home visits for some time before 6-months, suggesting possible program drop out that had not yet been confirmed by a case conference. It was clarified that case conferences were held weekly, meaning that unless otherwise documented, it was only the intensity of the participant's involvement that declined, and they intended to remain enrolled in the program.

### 3.6 ANALYSIS

The PASW (SPSS) Statistics 18 program was used for data cleaning and analysis. Frequency distributions for all variables were checked for invalid codes, unfeasible interactions or duplicates. As a longitudinal study utilising repeated measures, missing values and attrition were significant issues in analysis. However, as retention and attrition were the primary focus of this study, characteristics of clients lost to follow-up as compared to program completers were analysed as part of the overall data analysis. Completed cases only were included in the analyses for each research question.

Instead of engaging in classical significance testing, the focus of the analysis was on estimation of effect sizes and confidence intervals. For analysis purposes, the sample needed to be broken into smaller subgroups, making significance testing (using traditional  $p$ -values to convey relationships) unfeasible. Furthermore, reporting relationships through effect sizes and measures of clinical significance was deemed a more appropriate method of exploring the research questions. Clinical significance was reported in terms of the effect sizes of Cohen's  $d$ , Pearson's correlation ( $r$ ) and odds ratios. Secondary analysis techniques with particular relevance to small sample sizes were utilised in order to avoid Type II error and have the maximum likelihood of detecting trends and effects.

Odds ratios were used to explore whether particular subgroups of women in the study were more likely to drop out of the program. To explore the relationship between maternal antenatal characteristics and intensity/duration of involvement, maternal characteristics were dichotomised and the mean number of visits (intensity) were analysed using Cohen's  $d$  and 95% confidence intervals around mean scores. The relationships between maternal wellbeing, intensity of maternal involvement, maternal responsiveness to the infant and the provision of a suitable home environment were explored using Pearson correlations and the Reliable Change Index. Further detail is provided in section 3.6.3.1.

### 3.6.1 Descriptive Statistics

Descriptive statistics were calculated to summarise characteristics of the sample. Continuous dependent variables were normally distributed, thus bivariate correlations were used for the analysis. The mean age of participants was 27 (*SD* 6.00) years, and for 31% ( $n = 13$ ) of the sample this child was their first. The sample population proved to be particularly vulnerable, with 59% ( $n = 25$ ) experiencing financial stress, 21% ( $n = 9$ ) reporting that their relationship was characterised by domestic violence, and 16% ( $n = 7$ ) unable to identify any source of support from family or friends that would be available in the postnatal period. More than half (60%,  $n = 25$ ) of the women received an elevated score on the Abuse scale of the CAPI during pregnancy, and 55% ( $n = 23$ ) received an elevated depression screening score on the antenatal EPDS. Further sample characteristics are included in Tables 2 and 3.



**Table 2:** Baseline Characteristics of Total Sample of Mothers, Frequency (%), *N* = 40

Characteristic	n (%)	Characteristic	n (%)	Characteristic	n (%)
Age range		Maternal parity		Primary source of income	
- 15 – 23 years	14 (35.0)	- Primiparas	12 (30)	- Paid employment	22 (55.0)
- 24 – 40 years	25 (62.5)	- Multiparae	27 (67.5)	- Government benefits	13 (32.5)
				Educational level	
Sole parent	15 (37.5)			- 12 years or more	11 (27.5)
				- 10 years or less	15 (37.5)
Marital status		Family income P.A		- Some high school	8 (20.0)
- Single	9 (22.5)	- < \$9000	2 (5.0)	- Primary school	1 (2.5)
- Married	8 (20.0)	- \$9001 - \$16000	4 (10.0)	Ethnicity	
- Defacto	15 (37.5)	- \$16001 - \$26000	10 (25.0)	- Born in Australia	25 (62.5)
- Separated	4 (10.0)	- \$26001 - \$50000	16 (40)	- Born overseas	10 (25.0)
- Divorced	3 (7.5)	- > \$50000	3 (7.5)	- ATSI	2 (5.0)

**Table 3:** Risk Profile of Total Sample of Mothers at Antenatal Assessment, Frequency (%), N=40

Characteristic	<i>n</i> (%)	Characteristic	<i>n</i> (%)	Characteristic	<i>n</i> (%)
Mental Illness		Depression score		Housing stability	
- Maternal history	30 (75.0)	- Elevated	21 (52.5)	- Moved $\geq$ 3 times in	17 (42.5)
- Partner history	8 (20.0)	- Not elevated	18 (45.0)	past 12-months	
- Maternal history of PND	13 (32.5)	Child Abuse Potential Score		Substance use during pregnancy	
Experience of Abuse		- Elevated	23 (57.5)	- Cigarettes	15 (37.5)
- From partner	9 (22.5)	- Not elevated	14 (35.0)	- Alcohol	15 (37.5)
- As a child	17 (42.5)	Prior DOCS involvement	4 (10.0)	- Other drugs	1 (2.5)

### 3.6.2 Clinical Significance

There is much interest amongst health and health related literature in finding clinical rather than statistical differences to understand change in a condition that will meet clinical standards for improvement. There is a recognised need to report on the proportion of families that benefit from an intervention, information that is hidden in analyses of statistical significance at the group level (Harnett & Dawe, 2008). Statistical significance between test scores can be obtained even if the effect being explored is very small, and if a study is underpowered, statistical significance is unlikely even if the effect size is large.

In terms of maternal wellbeing, it is important to understand an improvement or deterioration in psychological condition in terms of whether the participant was clinically well or unwell at commencement of the intervention, and if the participant noticeably deteriorated, improved or recovered. This enables clinicians to explore why some women show a decrease in score while others do not, and how this relates to program involvement and outcomes. The simple reporting of the parametric/non-parametric statistic does not facilitate such an enquiry (Matthey, 2004). The present study will utilise three measures of effect size to convey the strength of these relationships: (i) Cohen's  $d$  statistic as an estimate of the difference between two means; (ii) Pearson's  $r$  correlation as measure of strength of association between two continuous variables, and (iii) odds ratio (OR) to compare the difference in risk of an outcome between two groups. Techniques used in this study to explore such relationships are described in detail in section 3.6.3.

To understand maternal involvement in home visiting, it is important to determine what degree of participation reflects a change in intensity of engagement. Measures of what constitutes low or high-intensity involvement vary according to program structure, and the outcome variable of interest. For example, a reduction in one visit from the Family Care program means the participant received approximately 90-minutes less face-to-face time with the nurse home visitor. For a woman in the immediate postpartum period who is expected to receive weekly visits, this lessening in level of support received may produce a substantial

decrease in her ability to manage during this challenging time. The variance in intensity of involvement needed to effect program outcomes is also related to program type, delivery and structure.

There has been minimal use of effect sizes to quantify relationships between maternal psychological characteristics and involvement in a home visiting program. Only one study could be found that used Cohen's  $d$  to explain these relationships (Olds & Korfmacher, 1998). The interpretation of effect size in this study defined a standardised effect size of 0.2 as a small effect (only able to be detected statistically), 0.5 as a medium effect (detectable by a trained observer) and 0.8 as a large effect (detectable by an untrained observer), as recommended by Cohen (1988). Olds and Korfmacher (1998) described a Cohen's  $d$  of 0.25 when examining maternal psychological resources and maternal involvement as a "small to moderate" effect. Bivariate analyses in Raikes et al. (2006) described Pearson's correlations of .1 to .2 (similar in strength to the above  $d$  value) between maternal demographic characteristics and involvement as "generally small". Odds ratios and confidence intervals are most frequently reported when describing the relationship between maternal characteristics and duration of involvement, however little to no interpretation of these characteristics is offered, and they are included in the analysis on the strength of their associated  $p$ -values, rather than magnitude of effect. Further detail regarding how a meaningful difference in intensity or duration of involvement was determined for this study is included in section 3.6.3 below.

### **3.6.3 Approach to the Analysis of Specific Research Questions**

- A. Is maternal enrolment in an augmented nurse home visiting program related to duration and intensity of maternal involvement?

The 40 participants in the original trial were randomised to receive either standard Family Care nurse home visits ( $n = 20$ ) or the augmented program, consisting of standard Family Care nurse home visits and the PUP B program ( $n = 20$ ). To determine if enrolment in an

augmented nurse home visiting program was related to intensity of maternal involvement, the mean number of visits received by participants in each group at time point 6-weeks, 12-weeks, and 6-months were compared. The difference between these means produced an effect size ( $d$ ) which was used to determine if this difference was clinically important. One visit was equivalent to half a standard deviation, or a Cohen's  $d$  of 0.50. After the review of home visiting literature and of the Family Care program, a difference in at least one visit ( $d \geq 0.50$ ) at each time point was defined as meaningful (clinically significant) for the current study.

Enrolment at 6-months was used as a measure for duration of time spent in the program. Odds ratios and their associated confidence intervals were used to determine the degree to which a difference in program attrition existed between recipients of the standard Family Care and augmented PUP B program.

Due to the sample ( $N = 40$ ) being randomised into intervention (augmented program) and control (standard Family Care) groups in the original trial, measures were undertaken to ensure analyses for subsequent research questions could be conducted on the whole sample for the current study. Participants in the intervention and control groups were pooled for data analysis in the current study to ensure an adequate sample size. If no real differences existed between participants in the augmented program and standard Family Care in terms of intensity of involvement ( $d < 0.50$ ) and program attrition ( $OR > 0.33$ ), it was deemed acceptable to conduct further analyses on the sample as a whole, rather than as two randomised, independent groups. Combination of intervention groups in randomised controlled trials to examine maternal involvement has been conducted previously, with less vigorous methods of assessing for homogeneity (Girvin, et al., 2007).

- B. Are maternal antenatal characteristics, and changes in maternal wellbeing over time, associated with intensity and duration of maternal involvement?

The relationship between maternal antenatal characteristics and intensity of involvement was measured for completed cases at each time point (6-weeks, 12-weeks, and 6-months), with

mean number of visits received by each time point used as the outcome measure. Continuous independent variables were dichotomised to facilitate analysis. A difference of at least one visit ( $d \geq 0.50$ ) at each time point was deemed meaningful for the present study.

To determine if maternal antenatal characteristics were related to program attrition, odds ratios were calculated, with enrolment at 6-months used as a measure for duration of time spent in the program.

### **3.6.3.1 Reliable Change Index**

Changes in maternal wellbeing were examined by calculating the reliable change index (RCI) for EPDS and CAPI scores respectively. The RCI is a measure of the likelihood that change between pre- and post-test scores for an individual participant is due to chance or measurement error, taking into account the reliability and initial standard deviation of the measure (Jacobson & Truax, 1991). This technique is particularly effective when analysing small data sets.

According to Bauer, Lambert, and Lars Nielson (2004), a general consensus has been developed where the status of a patient is characterised as clinically significantly changed when the client's level of measured functioning is located in the non-functional range at the beginning of treatment and in the functional range at the end of treatment, if that change is statistically reliable. The Jacobson-Truax method was determined to be the most appropriate to calculate an RCI. It is the most popular, is easy to compute, has cut-off estimates for a number of widely used instruments, and provides a moderate point between the extremes of other methods (Bauer, et al., 2004).

A freely available computer program, the "Reliable Change Generator" (Deville, 2004) was used in conjunction with a reliability coefficient and standard deviation to calculate the degree of change needed to be 95% confident that a clinically significant change had occurred in the individual. This calculation determined that an RCI score of  $\geq 1.96$

(equivalent to a 4-point change in EPDS score) and a 58-point change in CAPI score would indicate 95% confidence in determining that real change had occurred. To calculate an RCI score for each individual, pre-test scores were subtracted from post-test scores, and divided by the standard error of the difference (Jacobson & Truax, 1991).

Bivariate analyses were performed to determine if a relationship existed between changes in maternal wellbeing (as measured by the EPDS and CAPI) and intensity of involvement (number of visits received by 6-weeks, 12-weeks and 6-months). A Pearson correlation coefficient ( $r$ ) of .30 was deemed to be indicative of a moderately strong relationship. In this case, participants were included in these calculations regardless of whether their scores had changed by the minimum amount determined by the RCI. In order to confirm that any relationships detected by the analysis were the result of clinically significant change rather than measurement error or chance, a visual investigation of the relationship between the number of visits received and category of change was conducted (see Figure 1, Chapter 4).

The RCI was used to determine if the scores recorded by participants indicated no change, improved but not recovered, recovered, or deteriorated (as measured by the EPDS). The *no change* category included participants whose scores had changed by  $< 4$ , or whose scores had changed by  $\geq 4$  but who recorded a non-clinical score in both tests. *Improved* participants' scores decreased by  $\geq 4$  points, but remained in the clinical range at both test points. *Recovered* participants' scores decreased by  $\geq 4$  points and changed from being in the clinical to the non-clinical range. Those who *deteriorated* had scores that increased by  $\geq 4$  points, and may or may not have crossed the clinical cut-off point of 12.

Participants were similarly categorised in terms of their CAPI scores. The *no change* category included participants whose scores had changed by  $< 58$ , or whose scores had changed by  $\geq 58$  but who recorded a non-clinical score in both tests. *Improved* participants' scores decreased by  $\geq 58$  points, but remained in the clinical range at both test points. *Recovered* participants' scores decreased by  $\geq 58$  points and went from being in the clinical to the non-clinical range. Those who *deteriorated* had scores that increased by  $\geq 58$  points, and may or may not have crossed the clinical cut-off point of 215 points.

- C. Are intensity of maternal involvement and changes in maternal depression associated with suitability of the home environment and maternal responsiveness to the infant?

Bivariate analyses were performed to determine if a relationship existed between intensity of maternal involvement, changes in maternal wellbeing, suitability of the home environment and maternal responsiveness to the infant. A summary of the data pairs subjected to bivariate analysis and the measure used to generate these data is provided in Table 4. After reviewing relevant literature, a Pearson correlation coefficient ( $r$ ) of  $\geq .30$  was determined as an appropriate point to determine the existence of a clinically significant relationship.

**Table 4:** Summary of bivariate analyses for Research Question C

Pair of variables	Measure
Intensity of involvement / change in child abuse potential	Number of visits received by each time point / reliable change index of CAPI score
Intensity of involvement / change in maternal depression	Number of visits received by each time point / reliable change index of EPDS score
Intensity of involvement / suitability of the home environment	Number of visits received by each time point / total HOME score
Intensity of involvement / maternal responsiveness to the infant	Number of visits received by each time point / HOME responsiveness subscale
Change in maternal depression / suitability of the home environment	Reliable change index of the EPDS score / total HOME score
Change in maternal depression / maternal responsiveness to the infant	Reliable change index of the EPDS score / HOME responsiveness subscale



# **Chapter 4: Results**

## **4.1 INTRODUCTION**

This study investigated the relationship between program augmentation, maternal antenatal characteristics, changes in maternal wellbeing, and maternal involvement in the Family Care nurse home visiting program. In addition, the relationship between intensity of maternal involvement, maternal depression and program outcomes has been explored. This chapter details the findings of the research conducted as described in Chapter 3. Descriptive statistics regarding the intensity and duration of involvement of the sample are presented. The research questions are answered, and characteristics of participants and missing data are described.

## **4.2 DESCRIPTIVE STATISTICS**

### **4.2.1 Number of Visits**

The number of visits received by participants still enrolled at each time point is described in Table 5. All continuous variables were normally distributed. At each time point, the mean number of visits received was substantially less than that prescribed by the program. Thus, not only did the program experience a considerable amount of participant attrition, as evidenced by the loss in participant numbers, the ratio of visits received to visits intended was small.

**Table 5:** Number of actual visits received

Time point	Prescribed	Mean Visits ( <i>SD</i> )	Median	Mode
6-weeks ( <i>n</i> = 36)	6	4.14 (1.78) Range (0 – 6)	4.50	6
12-weeks ( <i>n</i> = 31)	9	7.16 (2.83) Range (1 – 12)	8.00	8
6-months ( <i>n</i> = 23)	15	8.22 (3.28) Range (2 – 15)	8.00	5

### 4.3 MISSING DATA

Data were collected on all participants ( $N = 40$ ) at the antenatal assessment, 90% ( $n = 36$ ) of participants at 6-weeks, 78% ( $n = 31$ ) of participants at 12-weeks and 58% ( $n = 23$ ) of participants at 6-months. Therefore, no cases had all data collected at all time points. Characteristics of participant attrition are not described here as they form the basis of generating the research questions for this study. The number of participants still enrolled at each time point did not necessarily coincide with the collection of corresponding measures of maternal wellbeing and Family Care program outcomes. Even though 24 participants remained enrolled in the program at 6-months, total and responsivity scores on the HOME scale were only available for 8 participants. Similar discrepancies were evident with collection of EPDS and CAPI scores.

## **4.4 ANSWERING THE RESEARCH QUESTIONS**

### **4.4.1 Is maternal enrolment in an augmented nurse home visiting program related to intensity and duration of maternal involvement?**

No clinically significant relationships were observed between program type and intensity of maternal involvement or duration of maternal involvement. No relationship was observed between the mean number of visits received by each time point and program type. Participants in PUP B + FC compared to FC received slightly more home visits at 12-weeks (*Mean* 7.53, *SD* 3.07; *Mean* 6.81, *SD* 2.64); however this relationship was not clinically significant ( $d = 0.25$ ). Participants who received PUP B + FC were slightly more likely to drop out of the Family Care program by 6-months (OR = 0.68, 95% CI 0.19; 2.41), however this relationship was not clinically significant.

### **4.4.2 Are maternal antenatal characteristics, and changes in maternal wellbeing over time, associated with intensity and duration of maternal involvement?**

#### **4.4.2.1 Intensity and Duration of Involvement**

A number of maternal antenatal characteristics were strongly related to intensity of involvement in the home visiting program, as shown by the effect sizes reported in Table 6. Bold font has been used to highlight those effect sizes that are clinically significant, that is, where Cohen's  $d$  is greater than 0.50. While the effect sizes varied over the course of the program, the directions of the effect remained constant, indicating a consistent relationship between maternal characteristics in the antenatal period and the intensity of involvement as measured at each time point.

Women who reported no history of postnatal depression (Hx PND in Table 6) received more visits than those who reported a history at 6-weeks and 6-months. In addition, women also received more visits if they had a “normal” EPDS score ( $< 12$ ), if they smoked, had higher levels of housing instability, experienced financial stress, and had a lower level of education.

Women experiencing intimate partner violence (IPV) received less visits than those who were not. Two antenatal characteristics, CAPI and Smoker, consistently showed clinically significant effect sizes of  $\geq 0.5$  in relation to the number of home visits received: CAPI and Smoker. Across all three time points, women who had an elevated antenatal CAPI score received less visits than those whose CAPI was not elevated, and women who smoked received more visits than non-smokers. Both results were clinically significant with effect sizes in the moderate range ( $> 0.5$ ).

Some differences were found between those still enrolled in the program at 6-months ( $n = 24$ ) and participants who had dropped out ( $n = 16$ ). Women with no history of anxiety were more likely to drop out of the program (OR 0.33, 95% CI 0.06; 1.94), and multiparas were also more likely to drop out (OR 0.54, 95% CI 0.13; 2.22). Women in relationships characterised by domestic violence were 82% more likely to drop out (OR 0.18, 95% CI 0.03; 1.04) as were sole parents (OR 0.56, 95% CI 0.15; 2.10). Women with an elevated antenatal CAPI score were also somewhat less likely to stay in the program (OR 0.61, 95% CI 0.16; 2.37).

**Table 6:** Relationships between maternal antenatal characteristics and intensity of maternal involvement

	Hx PND		CAPI		EPDS		Smoker		Housing		Domestic Violence		Maternal History of Mental Illness		Postnatal Support Available	
	No	Yes	Not elevated	Elevated	Not elevated	Elevated	Yes	No	Moved 3 or more times	Moved less than 3 times	No	Yes	Yes	No	No	Yes
0 to 6-weeks (n=36)																
<i>n</i>	10	11	12	21	17	18	12	22	15	15	22	9	26	6	4	27
Mean	4.70	3.73	5.33	3.62	4.53	3.78	5.17	3.55	4.40	3.60	4.18	3.44	4.31	3.83	4.00	3.96
(SD)	(1.83)	(1.90)	(0.99)	(1.88)	(1.70)	(1.87)	(1.47)	(1.71)	(1.55)	(2.03)	(1.82)	(1.74)	(1.87)	(1.94)	(1.41)	(1.87)
<b>Effect Size (d)</b>	<b>0.52</b>		<b>1.14</b>		<b>0.42</b>		<b>1.02</b>		<b>0.44</b>		<b>0.42</b>		<b>0.26</b>		<b>0.02</b>	
95% CI	3.39; 6.01	2.45; 5.01	5.19; 6.06	2.35; 4.52	3.37; 5.55	2.35; 5.28	3.88; 6.12	2.38; 4.76	3.50; 5.35	2.05; 5.55	3.55; 5.51	1.46; 5.11	3.55; 5.06	3.49; 5.12	1.75; 6.25	3.22; 4.70
0 to 12-weeks (n=31)																
<i>n</i>	8	8	11	18	15	16	11	18	15	11	21	5	23	4	2	24
Mean	7.75	7.63	8.18	6.78	7.80	6.56	8.18	6.50	7.73	5.91	7.00	6.80	7.61	5.75	8.00	6.88
(SD)	(1.67)	(2.83)	(1.66)	(3.34)	(2.18)	(3.29)	(2.99)	(2.64)	(2.89)	(2.81)	(3.10)	(2.49)	(2.79)	(4.03)	(1.41)	(3.04)
<b>Effect Size (d)</b>	<b>0.05</b>		<b>0.53</b>		<b>0.44</b>		<b>0.60</b>		<b>0.64</b>		<b>0.07</b>		<b>0.54</b>		<b>0.47</b>	
95% CI	6.35; 9.15	5.26; 9.99	7.06; 9.30	5.12; 8.44	6.59; 9.01	4.81; 8.31	6.17; 10.19	5.19; 7.81	6.13; 9.33	4.02; 7.80	5.59; 8.41	3.71; 9.89	6.40; 8.82	-0.66; 12.16	-4.71; 20.71	5.59; 8.16
0-6-months (n=23)																
<i>n</i>	7	5	9	12	11	12	8	13	9	9	16	2	17	3	2	16
Mean	9.43	7.20	9.78	7.58	8.36	8.08	10.13	7.15	7.89	7.89	8.13	6.00	8.59	7.33	11.00	7.50
(SD)	(3.74)	(2.68)	(2.91)	(3.32)	(2.91)	(3.70)	(3.23)	(2.97)	(2.76)	(4.01)	(3.46)	(1.41)	(3.48)	(3.06)	(5.66)	(3.01)
<b>Effect Size (d)</b>	<b>0.69</b>		<b>0.70</b>		<b>0.08</b>		<b>0.96</b>		<b>0.00</b>		<b>0.81</b>		<b>0.38</b>		<b>0.77</b>	
95% CI	5.97; 12.88	3.87; 10.53	7.54; 12.01	5.48; 9.69	6.41; 10.32	5.73; 10.44	7.43; 12.82	5.36; 8.95	5.77; 10.01	4.80; 10.97	6.28; 9.97	-6.71; 18.71	6.80; 10.38	-0.26; 14.92	-39.82; 61.82	5.90; 9.10

#### 4.4.2.1 Maternal Wellbeing and Intensity of Involvement

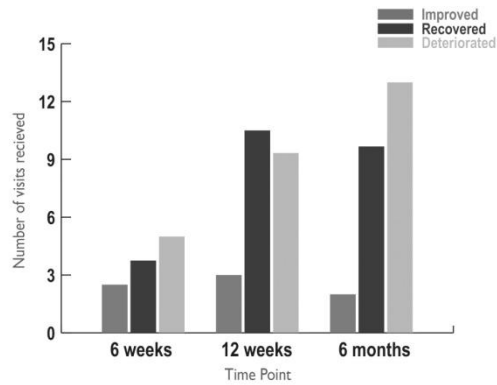
Maternal wellbeing, as measured by the EPDS and CAPI, was calculated in terms of the RCI score (see section 3.6.3.1) to give an impression of changes in maternal mood and functioning over time, and its relationship with intensity of maternal involvement. As the EPDS and CAPI scores increase, maternal wellbeing deteriorates. In this study, a weak correlation ( $r = .20$ ) was observed between an increase in EPDS RCI score and number of visits received by 6-weeks. A similar correlation ( $r = .19$ ) was observed between an increasing CAPI RCI score and number of visits received in the same period. Thus, women's intensity of involvement in the home visiting program increased as scores measuring maternal depression (EPDS), or their child abuse potential (CAPI) also increased over time.

Over the first 12-weeks of the program, an increase in the CAPI RCI score was positively correlated with the number of visits received ( $r = .40$ ). A similar pattern was observed in EPDS scores, with an increase in EPDS score positively correlated with the number of visits ( $r = .50$ ). A strong correlation was observed between an increase in CAPI score and receiving more home visits in the second 6-weeks of the program ( $r = .50$ ).

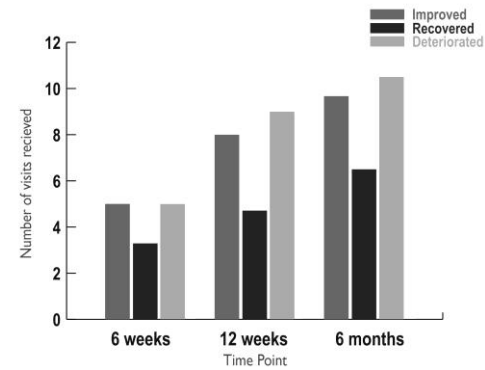
A moderate correlation was observed between increasing EPDS scores and receiving more home visits over the first 6-months ( $r = .37$ ). More visits received during the second 3-months of the program was correlated with an increase in CAPI score from the antenatal to 6-month measure ( $r = .30$ ).

The differences in mean number of visits received by those who were categorised as *deteriorated* versus those who *improved* or *recovered* are detailed in Table 7 and Figures 3 and 4. The results are consistent with the correlations between number of visits and RCI scores described above, with participants in the *deteriorated* category receiving more visits, in terms of effect size ( $d$ ), than those whose condition improved or recovered. Due to the low number of participants ( $n$ ) in each RCI category, it was not always possible to calculate an effect size ( $d$ ) and 95% CIs around the means were correspondingly wide. The *no change* category was made up of women whose RCI score changed by less than a clinically significant amount in the time period. These women may have had clinically elevated CAPI

or EPDS scores for the duration of the program, or may have scored in the non-clinically elevated range for CAPI or EPDS scores for the duration of the program. Due to the focus of the research questions being on a change in participant depression and child abuse potential over time, data concerning the number of visits received for women in the *no change* category for these measures is not presented in Figures 3 and 4 or Table 7. The use of bold font in Table 7 denotes a clinically significant effect size (Cohen's  $d > 0.50$ ).



**Figure 3:** Intensity of maternal involvement according to RCI category (CAPI score)



**Figure 4:** Intensity of maternal involvement according to RCI category (EPDS score)

**Table 7:** Intensity of maternal involvement per RCI category (EPDS and CAPI) at 6-weeks, 12-weeks and 6-months

Group/Time	<u>Deteriorated</u>			<u>Improved</u>			<u>Recovered</u>				
	<i>n</i>	<i>M (SD)</i>	95% CI	<i>n</i>	<i>M (SD)</i>	95% CI	Effect ( <i>d</i> )	<i>n</i>	<i>M (SD)</i>	95% CI	Effect ( <i>d</i> )
<b>EPDS</b>											
0–6 weeks	4	5.00 (1.41)	(2.75, 7.25)	2	5.00 (0.00)	-	-	7	3.29 (2.22)	(1.24, 5.33)	<b>0.92</b>
0–12 weeks	4	9.00 (1.41)	(6.75, 11.25)	1	8.00 (0.00)	-	-	7	4.71 (3.35)	(1.61, 7.81)	<b>1.67</b>
0–6 months	2	10.50 (6.36)	(-46.68, 67.68)	3	9.67 (4.16)	(-0.68, 20.01)	0.15	2	6.50 (6.36)	(-50.68, 63.68)	<b>0.63</b>
<b>CAP</b>											
0–6weeks	2	5.00 (0.00)	-	4	2.50 (2.38)	(-1.29, 6.29)	<b>1.49</b>	4	3.75 (2.87)	(-0.82, 8.32)	<b>0.62</b>
0–12 weeks	6	9.33 (1.37)	(7.90, 10.77)	4	3.00 (1.83)	(0.09, 5.91)	<b>3.92</b>	2	10.50 (2.12)	(-8.56, 29.56)	<b>-0.66</b>
0–6 months	2	13.00 (2.83)	(-12.41, 38.41)	1	2.00 (0.00)	-	-	3	9.67 (4.16)	(-0.68, 20.01)	<b>0.94</b>

*Note:* Effect size (*d*) represents magnitude of difference between mean number of visits received in the deteriorated group versus the improved group, and the deteriorated group versus the recovered group. Bold font denotes clinically significant effect size.



### 4.4.3 Are intensity of maternal involvement and changes in maternal depression associated with suitability of the home environment and maternal responsiveness to the infant?

#### 4.4.3.1 Maternal Involvement, the Home Environment and Responsivity

Bivariate analyses were used to investigate the relationship between intensity of maternal involvement, as measured by the number of visits received by each time point, and Family Care program outcomes. The Family Care outcomes measured in the current study primarily concerned the provision of a suitable home environment for the infant, as measured by the HOME total score, and maternal attachment to the infant, measured by the HOME responsivity subscale. Higher scores on these scales are suggestive of a positive home environment and maternal attachment. A higher HOME score at 6-weeks was positively correlated with the receipt of more visits in this period ( $r = .31$ ). The number of visits received in the first 6-weeks was also related to 12-week HOME and responsivity scores ( $r = .11$  and  $r = .30$ , respectively), however the correlation between the number of visits received and 12-week HOME scores was not clinically significant.

**Table 8:** Correlations between intensity of involvement and 6-Month HOME and responsivity scores

Outcome Measure	Time Period			
	0 to 6-weeks	0 to 12-weeks	12-weeks to 6-months	0 to 6-months
Responsivity	.41	.32	.31	.32
HOME total	.37	.39	.38	.41

Of those still enrolled at 6-months, receiving more visits at each time point (6-weeks, 12-weeks and 6-months) was positively correlated with a higher 6-month HOME and responsivity score, as seen in Table 8.

#### 4.4.3.2 Maternal Depression, the Home Environment and Responsivity

Change in maternal depression, as determined by the EPDS RCI score, was correlated with responsivity and HOME total scores. As seen in Table 9, this relationship was strongest at 6-months postpartum, where an EPDS RCI score indicative of a deterioration in maternal depressive status was strongly correlated with maternal responsivity to the infant ( $r = .65$ ) and moderately correlated with total HOME score ( $r = .26$ ). Thus, women who became more depressed over the course of the Family Care program were more attached to their infant, and more able to provide a suitable home environment. No clinically significant relationship between EPDS RCI score and responsivity or HOME total scores was evident at 12-weeks. A weaker, negative relationship was observed in the first 6-weeks following the baby’s birth, with deterioration in EPDS RCI score correlated with lower HOME total scores.

**Table 9:** Correlations between responsivity and HOME total Scores and EPDS RCI Index scores

Measure	EPDS RCI 0 to 6-weeks	EPDS RCI 0 to 12-weeks	EPDS RCI 0 to 6-months
Responsivity 6-weeks	<b>-.02</b>	.25	.75
HOME total 6-weeks	<b>-.30</b>	.19	.19
Responsivity 12-weeks	.06	<b>-.01</b>	.40
HOME total 12-weeks	-.06	<b>.12</b>	.63
Responsivity 6-months	.58	.76	<b>.65</b>
HOME total 6-months	.07	.30	<b>.26</b>

*Note:* Bold font represents matched time between outcome measure and EPDS RCI score

This chapter has examined the research questions and explored the extent to which program augmentation and maternal characteristics impact on maternal involvement in a sustained nurse home visiting program, and the impact maternal involvement had on program outcomes. Descriptive statistics detailed the vulnerability of the sample population and the extent of missing values in the data set. Program augmentation was not found to be related to either intensity or duration of maternal involvement in the home visiting program. Clinically significant relationships were found between maternal characteristics and intensity of involvement in the program, and intensity of involvement, changes in maternal depression

and program outcomes. The implications and context of these relationships are discussed in Chapter 5.

# **Chapter 5: Discussion and Conclusions**

## **5.1 INTRODUCTION**

The purpose of this study was to examine the extent to which program augmentation and maternal characteristics influenced maternal involvement in the Family Care nurse home visiting program. The study subsequently investigated how maternal involvement and maternal wellbeing were related to program outcomes. In this chapter results from analyses responding to each of the research questions will be discussed in the context of past empirical findings and the theoretical framework.

The results of this study confirmed that maternal vulnerability, not program augmentation, had the greatest impact on the duration and intensity of maternal involvement. As expected, intensity of maternal involvement and deterioration in maternal wellbeing were related to the program outcomes of maternal responsiveness to the infant and suitability of the home environment. This chapter presents a synthesis of these findings, together with the strengths and limitations of the study to further the empirical research base for the issue of maternal involvement in nurse home visiting programs to prevent child abuse and neglect.

## **5.2 PROGRAM AUGMENTATION AND MATERNAL INVOLVEMENT**

No clinically significant difference was found in intensity or duration of maternal involvement in the Family Care program between participants in the augmented program (PUP B + FC) or standard care (FC). Thus, for the purpose of this study it was appropriate to combine the augmented and standard care groups for subsequent analyses. Finding that duration and intensity of maternal involvement for women in the augmented and standard care programs was similar was surprising, given that previous attempts to discern varying degrees of maternal involvement as a result of program or provider factors have consistently found a relationship. In particular, research comparing maternal involvement in standard care and augmented programs has found higher completion rates in groups receiving the

intensified, augmented program (Damashek, et al., 2011), the shorter program (Girvin, et al., 2007), and programs delivered by nurses rather than paraprofessionals (Korfmacher, O'Brien, Hiatt, & Olds, 1999).

One of the aims of the PUP B program in the original trial was to increase maternal utilisation of community services such as the community child health clinic, social worker and psychological support services. It is interesting then, that women in the augmented program accessed significantly more of these services than those in the standard FC group (Kowalenko, 2007), yet displayed no difference in the duration or intensity of involvement in the FC program. While the focus of the FC program was on improving family functioning and maternal attachment to the infant, it also covered aspects of infant care such as immunisations, safe infant sleep, and infant development (Armstrong, 2000). Information on basic parenting skills may be equally as important to home visiting program participants as learning to interact appropriately with their newborn, and may be an example of the tangible assistance that has correlated with involvement in the past (Stevens, Ammerman, Putnam, Gannon, & Van Ginkel, 2005).

Program and provider factors are primary influences on maternal behaviour within Bronfenbrenner's ecological framework (Bronfenbrenner, 1980) and the Integrated Theory of Parental Involvement (ITPI) (McCurdy & Daro, 2001). Previous findings that the education, race, and attachment style of the home visitor may influence the extent of maternal involvement in the program correspond with this theory (Daro, et al., 2003; McCurdy, et al., 2003; McFarlane, et al., 2010). The ITPI focus on health visitor caseloads, training, and degree of supervision were unable to be examined in the present study, which may explain to some extent the inability of this study to find a relationship based on these factors.

## 5.3 MATERNAL CHARACTERISTICS AND INVOLVEMENT

### 5.3.1 Antenatal Characteristics and Duration of Maternal Involvement

With the exception of women with a history of anxiety, a trend emerged in which women with at-risk characteristics were slightly more likely to drop out of the program by 6-months. A maternal history of anxiety and current experience of intimate partner violence were the only two maternal antenatal characteristics that were clinically significant in increasing the likelihood of program attrition. While the odds ratios indicated that first time mothers and women with an elevated score on the Child Abuse Potential Inventory (CAPI) in the antenatal period were slightly more likely to drop out of the program, these relationships did not reach clinical significance, and must be interpreted with caution.

Past research has not investigated the relationship between anxious parents and their involvement with nurse home visiting programs, representing a new direction of enquiry. A history of anxiety has been found to lessen a woman's confidence in her ability as a new parent (Reck, Noe, Gerstenlauer, & Stehle, 2012), possibly rendering the FC nurse a welcome beacon of reassurance. Maternal history of depression and elevated antenatal EPDS score were not related to duration of involvement in the FC program, in spite of the recognised comorbidity between anxiety and depression (Hettema, 2008). This may be due to the decreased ability of a small sample to detect certain relationships, rather than a lack of association. While a relatively high proportion (20%) of participants in the sample reported in the current study reported a history of anxiety, the raw count of participants ( $n = 8$ ) was small, suggesting the need for caution when interpreting results. Contrary to previous findings (Josten, et al., 2002), this study has found that primiparas were also more likely to remain enrolled at 6-months. First time mothers may acknowledge their need for education and support, and participate in the program accordingly. This relationship was not evident in the current study when examining intensity of maternal involvement, suggesting that while the convenience of long-term enrolment in the program was appreciated, the need for home visits was not always present.

This study has found that women with an elevated antenatal child abuse score, sole parents, and women experiencing domestic violence were less likely to remain involved in the program at 6-months. These women may have found the philosophy of FC was incompatible

with their own parenting beliefs, or felt threatened by the prospect of subsequent involvement from child protection agencies (Stevens, et al., 2005). As proposed by the ITPI, FC may not have met the needs of sole parents, who may have desired tangible assistance and social support rather than the relationships-based intervention of FC (McCurdy & Daro, 2001; Stevens, et al., 2005). A woman struggling to meet the physiological needs of herself and her family may not have the resources to focus on higher-order needs, such as forming a secure bond with her infant (Maslow, 1943).

In keeping with assumptions of the ITPI, the high drop-out rate in this study (80%) of women in abusive relationships supports previous research that has found that without the support of other members of the household a woman is less likely to remain involved in home visit programs (Daro, et al., 2007). However, similar programs that aim to prevent child maltreatment have found increased rates of completion among women experiencing domestic violence (Damashek, et al., 2011; Fraser, et al., 2000) and other multiple risk factors (Ammerman et al., 2006). A recent qualitative exploration of the topic in the United States Nurse Family Partnership found that of the women experiencing intimate partner violence, while their relationship with the nurse home visitor was highly valued, many held initial reservations regarding full disclosure of their situation (Jack et al., 2012). On one hand nurse home visitors expressed confidence in their ability to respond in an empathic manner to disclosures of violence, however they also identified a need for further understanding of the cycle of abuse, clinical risk indicators suggestive of abuse and the potential impact on women and children involved (Jack, et al., 2012). In terms of Bronfenbrenner's theoretical framework, this reflects the challenges nurses face when acting in the mesosystem, attempting to mediate relationships experienced by the mother in her microsystem such as the mother-child relationship or mother-father relationship. Strong linkages within these microsystems, such as the mother-nurse dyad, are said to enhance personal development (Bryans, Cornish, & McIntosh, 2009). Premature drop out of these women suggests an inability of the nurse to nurture these linkages and promote safe outcomes.

Of concern is that the most vulnerable subgroup of women in the present study were out of reach of the FC program. Bearing witness to domestic violence is itself a form of child maltreatment, with potential long-term consequences for the children and families involved. Domestic violence limits child and maternal health outcomes in perinatal home visit programs (Sharps, et al., 2008), including nurse home visiting programs to prevent child abuse and neglect (Eckenrode, et al., 2000). Nurses describe domestic violence as very

private, and difficult to expose. A reluctance to explore these issues has been reported, either for fear of damaging the therapeutic relationship or due to an unwillingness to manage the complexity of the situation (Marion, 1999). Prior to the implementation of the original trial of PUP B, anecdotal reports from nurse home visitors indicated that the intervention was welcomed, as they often felt unprepared for the complex familial situations encountered in the course of their work (Kowalenko, 2007). Family Care nurse home visitors receive specific training in dealing with violent relationships; however this study was unable to determine the preparedness nurses felt when confronted with the situation in reality.

### **5.3.2 Antenatal Characteristics and Intensity of Maternal Involvement**

An overall trend emerged in the results of this study in which more vulnerable women participated in the FC program with a higher intensity of involvement at each time point. Women who experienced housing instability, had a history of mental illness, had no potential support available to them postnatally, and were cigarette smokers, received more visits throughout the course of the program. These relationships were only consistently clinically significant at all three time points for smokers and women with an elevated antenatal child abuse potential score. While the influence of housing instability, maternal history of mental illness and availability of postnatal support were all clinically significant at one time point, the strength of this effect was inconsistent, meaning that results must be interpreted with caution. Past research that has found these factors to be antecedents of involvement in home visiting, albeit in sometimes opposing directions of influence. Higher intensity of involvement in home visiting programs may also be due to a captive audience, maternal readiness to change, increased maternal motivation, or perceived need (Dawe, Harnett, Staiger, & Dadds, 2000). As the current study performed a secondary analysis on existing data, it is not known to which party to attribute the increased intensity of involvement. For example, the results of this study may reflect the ability of the nurse home visitor to successfully triage mothers according to perceived need, or that vulnerable mothers were asserting their needs and seeking support.

Women who displayed vulnerable characteristics and appeared to receive less visits in this study were those with a history of postnatal depression, women experiencing domestic violence, and women with elevated antenatal CAPI and EPDS scores. Revealing that women



in a violent relationship had dropped out of the FC program early and received fewer visits is important. Even for women who were retained in the program, barriers still remained for the nurse to successfully engage them in the intervention. Effective relationship building within Bronfenbrenner's theoretical framework at the microsystem level is essential to maternal engagement. A trusting and therapeutic relationship with the home visitor has consistently been identified as crucial to the involvement and engagement of women in early intervention programs (Daro, et al., 2007; Domian, et al., 2010; Girvin, et al., 2007; Kirkpatrick, et al., 2007; Korfmacher, et al., 2007; Sheppard, et al., 2004; Woolfolk & Unger, 2009), and is the basis of the theory of maternal engagement proposed by Jack and others (2005). In order to conquer an initial sense of powerlessness and vulnerability, mothers must work to overcome fear and build trust to develop a productive and fulfilling relationship (Jack, et al., 2005). For women in an abusive relationship, the demanding early days of parenthood are further complicated by violence in the home. The inability to form a therapeutic relationship with the home visitor may result in the mother making herself unavailable, emotionally and physically, to further home visits. Women experiencing domestic violence may also fear the involvement of child protective services, a previously acknowledged barrier to involvement (Jack, et al., 2012; Stevens, et al., 2005).

A considerable proportion (13%,  $n = 5$ ) of participants in the original FC trial did not respond to the questions screening for domestic violence. Unpublished accounts from the original trial (Fraser, 2012) reveal that blank responses to domestic violence in the intervention group directly correlated with later disclosure of violence to nurses with whom mothers developed a trusting relationship. Nurse home visitors in Canada have also described difficulty in screening for domestic violence in the home in the immediate postpartum period (Jack, Jamieson, Wathen, & MacMillan, 2008). Thus, those women who were not comfortable disclosing their experience of domestic violence antenatally may continue to refrain from doing so postpartum, when they are tired, in physical discomfort, busy, and have other family members present (Jack, et al., 2008). Hence, FC programs are having difficulty in retaining such women in the service and a review of screening methods for domestic violence is warranted.

On initial examination of the results of the current study, it appears that women at highest risk in terms of their child abuse potential and depression symptomatology received fewer visits than their lower risk counterparts, though this may not be the case. What is more likely to have occurred is that women whose wellbeing deteriorated over the course of the program (as measured by the EPDS and CAPI) received more visits than women whose condition was measured to have improved or recovered. This will be discussed in further detail in section 5.3.3 below.

### **5.3.3 Changes in Maternal Wellbeing and Intensity of Maternal Involvement**

This study has shown that deterioration in maternal wellbeing over the course of the intervention in the original study was associated with the receipt of more home visits. In general, fewer visits were completed for women whose wellbeing (as measured by CAPI and EPDS) improved or recovered over time. Changes in maternal wellbeing, using the Reliable Change Index (RCI) as measured by depression and child abuse risk scores, have not previously been examined for their relationship with maternal involvement, representing an exciting new field of enquiry. There are limited methods for assessing changes in maternal wellbeing, thus researchers have relied upon static measures to define the overall nature of maternal functioning, rather than examining change over time. The experience and sense of wellbeing in early mothering is dynamic, and these results demonstrate that it is appropriate to measure the dynamic and transactional elements of this experience, as it relates to program involvement, and child and parent outcomes.

While maternal psychopathology, in particular depression, has been found to be related to maternal involvement in the past (Girvin, et al., 2007; Josten, et al., 2002; McFarlane, et al., 2010; Sharp, et al., 2003; Stevens, et al., 2002), it has usually been measured at static points in time, and most often only at commencement of interventions. The results from this study suggest the potential limitations of this style of measurement, given that an interpretation of intensity of involvement based purely on antenatal measures suggests that women with the highest CAPI and EPDS scores (that is, the most vulnerable), received the least visits. Using

individual RCI scores in the present study has refuted this conclusion in this sample of vulnerable mothers.

The finding in this study that women most at-risk in terms of psychopathology and child abuse potential received more home visits is consistent, considering the most vulnerable women in the sample were also the most involved (see section 5.3.2). What is not clear from these data is who was responsible for the high intensity of involvement. A woman who is exhausted from the rigours of labour and childbirth, caring for her newborn, and whose wellbeing is rapidly deteriorating, is more likely to be in the home, and present for nurse home visits. Conversely, these results may reflect the effectiveness of nurse home visitors in forming a productive, trusting therapeutic relationship with mothers struggling to cope with newborn care. The influence of maternal psychopathology is not identified in the ITPI, however in keeping with the ecological framework, the relationship building by nurse home visitors is an example of nurses working in the mesosystem to improve relationships in the mother's microsystem. The nurse represents a link to further community health resources available to the mother, located in the macrosystem, that the mother may not otherwise have been aware of, or accessed. Regardless of who initiated contact, the fact that women in the FC intervention with higher depressive symptoms received more home visits is an important finding. Maternal depression is a major risk factor for child abuse and neglect, in particular neglect (Bromfield, Lamont, Parker, & Horsfall, 2010) and it is a considerable success of the FC program to find that women who may otherwise have not accessed child health services were receptive to nurse home visits.

Given the high degree of correlation between EPDS and CAPI scores it is not surprising that the relationships between maternal involvement and depression, and maternal involvement and child abuse potential, were related. Depression has consistently been found to be positively correlated with the Abuse scores of the CAPI (Milner, 1986). An important component of the RCI analysis in this study was unable to be examined in depth due to the size of the sample. That is, the degree of maternal involvement in the FC program for participants whose EPDS and CAP scores were elevated, but did not change over time, or were not elevated, and did not change over time. As the focus of analysis was on changes in maternal wellbeing over time, these two groups were combined in a "no change" category as suggested by Matthey (2004). Bivariate analyses of RCI index scores confirm that the relationship between involvement and deterioration was consistent, regardless of the extent to

which this change occurred; however it would be beneficial to clarify these relationships with a larger sample.

## **5.4 MATERNAL INVOLVEMENT, MATERNAL DEPRESSION AND PROGRAM OUTCOMES**

### **5.4.1 Intensity of Maternal Involvement, Suitability of the Home Environment and Maternal Responsivity to the Infant**

The positive correlation between intensity of involvement and program outcomes supports empirical findings that greater intensity of involvement leads to a stronger effect of the program. Conversely, it may reflect early drop out of participants who had a poorer quality of home environment and were less well attached to their infant. This hypothesis reflects the findings of this study, that women at higher risk of child maltreatment were less likely to remain enrolled in the program by 6-months (see section 5.3.1). However, previous research into the relationship between intensity of maternal involvement in home visiting programs and program outcomes has consistently found a positive relationship, even after regression analysis controlling for participant attrition (Heinicke, et al., 2000; Raikes, et al., 2006; Ramey, et al., 1992; Roggman, et al., 2008; X. Wen, et al., 2010). Further research with a larger sample, investigating outcomes of those who drop out of the program, would be beneficial in this regard. This has important implications for the implementation and evaluation of home visiting programs. Given that home visiting programs often show only mild to moderate success in achieving program outcomes (Nievar, et al., 2010), it is important to examine these results in the context of program fidelity. (Daro, 2010, p. 2) defines:

*Fidelity* is the extent to which an intervention is implemented as intended by its designers. It refers not only to whether or not all the intervention components and activities were actually implemented, but also to whether they were implemented properly.

When participants do not receive the full prescription of home visits, or the service model is not adhered to, they are less likely to achieve program goals. Interventions that successfully engage participants, or interpret results in the context of program fidelity, may have stronger effects than revealed by an initial analysis. Further work is needed to effectively engage families, to give them the best chance of achieving success as much as possible.

Additionally, not all participants in home visiting programs achieve the same outcomes. Greater program impacts have been found for families who are at greater risk of child maltreatment (Bradley, Burchinal, & Casey, 2001; Robinson & Emde, 2004). Conversely, (Mullins, et al., 2005) found that intensity of involvement was not related to the outcome measure of child abuse or neglect substantiations. However, some concern has been expressed over the accuracy of using substantiations as an outcome measure in child maltreatment prevention programs given its low incidence. Rather, ameliorating risk factors, or, as in the case of the present study, improving suitability of the home environment and maternal attachment has been validated as appropriate (Scott & Higgins, 2011). A recent small, exploratory study found that as mothers increased the level of warmth in their relationship with a home visitor, their degree of responsivity with the infant also increased (Popp & Wilcox, 2012) . However, as the level of maternal involvement in each home visit increased, their displays of responsivity decreased. This seemingly paradoxical finding supports the need for consistent measures of maternal involvement and outcomes to clarify relationships.

In the small, high-risk sample used in this study, the extent to which degree of risk and intensity of maternal involvement impacted on FC program outcomes was unable to be determined. For this reason, further research, with a sample large enough to conduct a regression analysis, would be beneficial in clarifying these complex relationships.

#### **5.4.2 Changes in Maternal Depression, Suitability of the Home Environment and Maternal Responsivity to the Infant**

An inconsistent relationship between deterioration in maternal depressive symptomatology and program outcomes was shown. At the 6-week time point HOME scores decreased as

mothers became more depressed. At the 12-week time point, no relationship was evident, and by 6-months this relationship reversed, whereby HOME scores improved at the same time maternal mood deteriorated. That is, of the participants still enrolled at 6-months, women who became more depressed achieved more positive outcomes on the HOME total and particularly the responsivity subscale. This may be indicative of the intervention increasing its impact over time, however, the high proportion of missing data on this measure (outcome measures were only available for 8 out of 24 participants) precludes reaching a conclusion at this time. Interpretation of these findings is limited without adequate data describing the HOME total and responsivity scores of participants who dropped out of the FC program. This reinforces the need, not only for further investigation of these relationships in a larger sample, but also to measure outcomes in women who have dropped out of home visiting programs.

The findings in this study of a relationship between deterioration in maternal depressive symptoms and higher HOME and responsivity scores are a first in home visitation literature. While conclusions drawn from bivariate analyses using a small sample are limited, it appears that the FC program was effective in meeting the needs of emotionally vulnerable women and assisting them to develop appropriate techniques to interact with their baby. To overcome the inherent daily challenges and vulnerability experienced by the women in this high-risk population is a substantial achievement, the struggle to meet their own basic mental health needs was overcome for the sake of forming a safe and secure attachment with their infant. Indeed, this was an aim of the PUP Babies program. Mothers were taught how to respond physically to their infant, for example, smile back at a smiling infant, chat to an alert baby, read books and so on, despite their inner feelings of sadness or anxiety.

Empirical findings on the relationship between maternal depression and program outcomes, in particular maternal responsivity to the infant, are mixed. Home visiting enhances maternal sensitivity when either maternal depression or maternal attachment anxiety are present (Duggan, Berlin, Cassidy, Burrell, & Tandon, 2009), and in some cases these impacts are concentrated to depressed mothers with insecure relationship attitudes (Robinson & Emde, 2004). However, analysis across seven different home visiting programs in the United States found that improvements in maternal depression were positively correlated with improvements in health literacy over a 12 – 18-month period (Smith & Moore, 2011). While the health literacy measure included a component of personal care and the home environment, the emphasis was heavily on maternal use of resources, and child health

measures. The high degree of variance among programs, their outcomes, and the lack of a specific measure for maternal responsivity may explain the conflicting direction of impact.

The effects of maternal depression on negative parenting behaviours and disengagement from the child are more pronounced in disadvantaged populations, and persist even after the depressive symptomatology has gone (Lovejoy, Graczyk, O'Hare, & Neuman, 2000). This accentuates the importance of effective interventions such as FC, and their implementation in the antenatal or immediate postpartum period, in order to minimise the long-term effects on parenting behaviours maternal depression can have. The FC intervention in this sample has overcome this effect, helping women from high-risk backgrounds to achieve high levels of responsivity and to provide a suitable home environment for their infant.

## **5.5 SUMMARY OF FINDINGS**

This study aimed to determine if program augmentation, maternal antenatal characteristics, and changes in maternal wellbeing were related to intensity and duration of involvement in a nurse home visiting program to prevent child abuse and neglect. In addition, the analysis investigated whether there was a relationship between intensity of involvement in the program, maternal depression, and the program outcomes of suitability of the home environment and maternal responsivity to the infant.

A comprehensive review of the literature found evidence of consistent challenges to the implementation of home visiting programs, particularly with retaining and engaging participants. While the processes associated with maternal involvement have been explored to some extent, drawing conclusions from empirical research is hampered by vastly different program structures, evaluation methodology and terminology. There is little research into maternal involvement in nurse home visiting programs to reduce child abuse and neglect, and no Australian research into maternal involvement. The methodology of this study consisted of a secondary data analysis of an original randomised controlled trial of a standard FC program and an augmented version (PUP B + FC). In addition, primary data was collected via an on-site chart audit of participants enrolled in this intervention at the child health clinic.

Program augmentation was found to have no impact on duration or intensity of maternal involvement in the program. This was surprising, given that one of the aims of the augmented program was to increase maternal utilisation of community health services. According to the ITPI, participants may have been more responsive to the provision of concrete support and tangible goods, than to the input of a psychological intervention. Furthermore, the PUP B program may have been sufficiently different to standard FC for participants to perceive them as two separate entities, not overlapping or impacting on one another.

Findings related to drop out from the FC program were mostly weak, and to some extent, mixed. First time mothers and those with a history of anxiety were slightly more likely to remain involved by 6-months. However, sole parents, women with an elevated child abuse potential score on the CAPI, and women in a relationship characterised by domestic violence were more likely to drop out. This relationship only reached clinical significance for women experiencing domestic violence and with a history of anxiety. In addition, these women were also less likely to receive the prescribed intensity of home visits. This contradicts the overall relationships observed, in which women with characteristics reflecting vulnerability at intake (housing instability, smoker, lack of available postnatal support, history of mental illness) received a higher intensity intervention than their less-vulnerable counterparts at the same time point. Women who smoked and who had an elevated CAPI score consistently reported clinically significantly less home visits. The impact of maternal mental illness on maternal involvement is unclear, and further investigation with a larger sample is warranted to explore these conflicting results.

As measured by depressive symptomatology and child abuse risk, deterioration in maternal wellbeing over time was associated with increased intensity of maternal involvement in the program. Women whose condition improved or recovered on either measure consistently showed a pattern of less home visits at each time point than those whose condition deteriorated. Sample size precluded further examination of participants whose condition did not change due to the extent required to display a clinically significant change, however bivariate analyses examining direction of change for the whole sample supported findings from reliable change categories.

In an expected outcome, the intensity of maternal involvement was related to program outcomes. A positive relationship was observed between the number of visits received, suitability of the home environment as measured by the HOME score and maternal



responsivity to the infant to the extent that the more home visits, the higher the score on the HOME scales. This finding has significant implications for further implementation of home visiting programs. It supports previous research that has shown that if a program is not implemented with fidelity, it is unlikely to achieve its desired outcomes. Furthermore, a negative relationship was observed between depressive symptomatology and maternal responsivity to the infant. Women who became more depressed over the course of the intervention were more responsive to their infant's cues. While it is important for mediators of this relationship to be explored in a larger sample, these results show the success of the FC program at moderating the impact of a major risk factor for child maltreatment and improving the potential for positive infant outcomes.

No home visiting program can claim to be effective with all families, and when working with high-risk families it must be assumed that some will fail to respond, or even engage, with the intervention. It may be asking too much of maternal participation research to expect it to be capable of translating across programs. While this study has found maternal characteristics to be strongly related to program involvement, it is not known to what extent this is because of the ability of the program to address high-level needs, or other help-seeking behaviours on the part of the mother. Given the strength of the findings on the relationship between maternal involvement and program outcomes, further research into maternal involvement in home visiting programs is essential to ensure the best possible outcome for vulnerable families.

## **5.6 STRENGTHS AND LIMITATIONS OF THE STUDY**

The present study is the first to examine the relationship between program augmentation, maternal antenatal characteristics and maternal wellbeing in a home visiting program in Australia. Furthermore, it is one of only a small number of studies investigating the relationship between aspects of program implementation, namely, maternal involvement, and program outcomes. This is the foundation of the importance of this study. Continued roll out of nurse home visiting interventions is occurring in most states in Australia despite little empirical evidence of the processes leading to outcomes. The interventions are strongly

supported with state and federal funding despite evidence of varying degrees of effectiveness. The results of this study will be relevant to subsequent evaluations of implementation process of nurse home visiting programs to prevent child maltreatment in Australia, the United States and the United Kingdom.

The sample size ( $N = 40$ ) is considered small in terms of the ability to examine results within predictive statistical modelling, particularly when the sample was required to be divided into smaller groups, and with loss to follow-up over time. However, in the context of the population being examined it is quite an achievement. The population in the present study was highly mobile, and exhibited a high proportion of factors that have previously been found to influence enrolment or retention in home visiting programs, placing participants at a higher risk of child maltreatment. The use of repeated measures in this field is rare, and repeat detailed data were able to be collected on a number of participants. This quality of data has been used to reveal relationships that are unlikely to have been explored in a larger dataset.

The examination of a woman's journey over the course of a home visiting program and how this relates to the intensity of her involvement and subsequent program outcomes is a first in this field. Prior to this, static measures of maternal wellbeing have been obtained, usually at only one point during an intervention. The contrasting results between static measures of maternal wellbeing and the reliable change index within this study present a previously unexamined aspect of the participation of women in home visiting programs to prevent child abuse and neglect.

As expected, changes in CAPI scores over time were reflective of EPDS scores. However these results should be interpreted with caution. The CAPI was originally developed as a screening measure, not to be used as a measure of change. Of the 180 items within the Child Abuse Scale (see Appendix E), many items are static. For example, the statement "As a child I was abused" is a static indicator. This is a measure that will not change over time, and is thus problematic when included in an instrument that is used to measure change. Dynamic measures of change are best used when examining dynamic, rather than static constructs (LeCroy & Krysik, 2010).

There are a number of measures of maternal involvement in early intervention programs, and some studies have been limited by their use of only a single measure. For example, while it is important to know who completes or does not complete a program, a study that only

investigates completion/non-completion overlooks vital components of program fidelity, and the intensity of involvement of completers. This has important implications for the achievement of program outcomes and subsequent program evaluations. While the present study was unable to determine the quality of maternal engagement in the FC program (as opposed to the quantity of involvement), quality and quantity of involvement have previously been found to be highly correlated (X. Wen, et al., 2010), thus it is expected to have minimal impact on relevance of findings.

The therapeutic relationship is reciprocal, and it is unknown whether higher rates of maternal involvement were initiated by the nurse home visitor or the mother. A vulnerable woman may have received more home visits because she was too depressed to leave the house, or the nurse home visitor may have had exceptional triage skills in targeting women of increased need. Furthermore, it is unknown how nurses felt in their interactions with these vulnerable women. Nurses can feel unprepared for the complex psychosocial situations they encounter in the course of their work (Zeanah, Larrieu, Boris, & Nagle, 2006). Moreover, a recent review of educational competencies of child and family health nurses found vast differences in training programs, with frequent omission of the provision of core skills and a lack of clinical facilitators (Kruske & Grant, 2012). This reveals a need for a review of the adequacies of education and training of home visitors assisting families with multiple, complex problems in Australia.

In keeping with the principal goal of the FC program to prevent child abuse and neglect, primary outcomes of the FC program are maternal responsiveness to the infant and the provision of a suitable home environment. Measuring a family's child abuse potential in terms of the incidence of risk and protective factors is likely to be a more accurate measure of program outcomes than child abuse and neglect substantiations. Further, measures of risk factors against child maltreatment, such as the infant having special needs, may have helped to provide a clearer picture of the relationship between maternal involvement and program outcomes, and describe the extent to which factors in the family's macro and exosystems, such as home, neighbourhood and cultural factors, impact on their involvement.

## 5.7 RECOMMENDATIONS FOR FUTURE RESEARCH

This study lays an important foundation for further research into disentangling the complex elements involved in home visiting aimed at preventing child abuse and neglect in Australia. It makes an important contribution to the existing international body of research by supporting previous findings and suggesting new directions involving tracking women over the course of a home visiting program. Further research into outcomes for participants who drop out of the program is essential, in order to unpack specific program effects. Given the magnitude of findings regarding familial violence in the present study, further research should focus on the importance of the household on maternal involvement, and methods to keep very high-risk families enrolled. Due to the greater risk of Aboriginal and Torres Strait Islander children for abuse and neglect, and the increasing implementation of nurse home visiting programs for this population, further research into how such families engage with these programs is essential. Due to its very nature, little is known about what exactly happens during home visits, which, along with quantitative measures of maternal involvement, is another important aspect of program fidelity. The extent to which the mother engages with the home visitor, or the extent to which the home visitor administers the program according to guidelines, may have important implications for maternal involvement and program outcomes.

In conclusion, as the emphasis on home visiting research develops further towards distinguishing which aspects of services are best able to produce positive outcomes for vulnerable families, disentangling antecedents of maternal involvement and the subsequent impact on program outcomes will become increasingly important. Home visiting programs are under increasing pressure to prove their worth, and as such they must be evaluated in the context of the degree of involvement of the participants. Furthermore, the consistent application of a relevant theoretical framework, such as the Integrated Theory of Parental Involvement, to contextualise research design and findings is essential to ensure the continued evolution of high-quality, empirically-based research in this field.

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## APPENDIX A: PERMISSION FROM ORIGINAL INVESTIGATOR

**From:** Sascha Kowalenko [mailto:sascha.kowalenko@caac.org.au]  
**Sent:** Tuesday, 18 August 2009 4:27 PM  
**To:** Jennifer Fraser  
**Subject:** RE: Ipswich data

Hi Jenny!

So sorry it's taken me so long to reply...I was at a conference last week and this week has been a little busy! I have no issues with you using the data – but am happy to chat about this (and other things) if you would like. My contact numbers are listed below.

Thanks Jenny and hope to hear from you,

Sascha

### **Sascha Kowalenko**

Clinical Psychologist

Social Emotional Wellbeing Branch

Central Australian Aboriginal Congress

25 Gap Road, Alice Springs, NT 0870

Ph: 08-8951 4424 or 0439 857 967

[www.caac.org.au](http://www.caac.org.au)

This message, together with any attachment, is intended only for the use of the individual or entity to which it is addressed, and may contain information that is legally privileged and confidential. If you are not the intended recipient, please be informed that any dissemination, distribution or copying of this message, or any attachment is strictly prohibited. If you have received this message in error, please advise the sender by reply e-mail, and delete the message. Thank you. Finally, the recipient should check this email and any attachments for the presence of viruses. Central Australian Aboriginal Congress accepts no liability for any damage caused by any virus transmitted by this email.

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**From:** Jennifer Fraser [mailto:[j.fraser@qut.edu.au](mailto:j.fraser@qut.edu.au)]  
**Sent:** Wednesday, 12 August 2009 8:43 AM  
**To:** Sascha Kowalenko  
**Subject:** Ipswich data

Hi Sascha

Sharon has provided your email address. I am interested in what has taken you so far away. Must be very interesting.

I am getting in touch to seek your approval to use data from the hard copy files from your thesis on PUPB (excluding the mindfulness measures) with the intention of using it as part of a student project to examine engagement and retention in HV programs.

Would you be happy if I work with the data that way?

Thanks for considering

Jenny

Jenny Fraser PhD | Senior Lecturer | School of Nursing and Midwifery, Faculty of Health | Queensland University of Technology | Room 342, Level 3, N Block, Kelvin Grove Campus 4059 | Ph: 3138 3875 | Fax: 3138 3814 | email: [j.fraser@qut.edu.au](mailto:j.fraser@qut.edu.au)

CRICOS No. 00213J

**APPENDIX B: PERMISSION FROM WEST MORETON HEALTH SERVICES DISTRICT ETHICS COMMITTEE**



**DARLING DOWNS -WEST MORETON  
HEALTH SERVICE DISTRICT  
HUMAN RESEARCH ETHICS COMMITTEE  
[EC00184]**

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**To: Dr Tara Flemington**  
**18 Castle St**  
**Kedron QLD 4031**

**From:** Jacqueline Robinson **Contact No:** (07) 3271 8656  
Acting-Chair/Ethics Officer/RGO **Facsimile No:** (07) 3271 8634  
DDWMHSD HREC email: Jacqueline [Robinson@health.qld.gov.au](mailto:Jacqueline_Robinson@health.qld.gov.au)  
The Park – Centre for Mental Health  
Sumner Park, QLD 4074

**Subject:** (09-10) Intensity of intervention, strength of engagement and relationship to outcomes in a nurse-led home visiting program for new parents: a pilot study. Ms Tara Flemington - retrospective chart review IH (L&NR)

**Approval number:** (09-10)

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The District Chief Executive Officer or their delegate has now given formal approval for your study to commence upon the recommendation of the duly constituted, DDWMHSD HREC and the Research Governance Office RGO. The DDWMHSD HREC process operates and complies with the NHMRC's *National Statement on Ethical Conduct in Research Involving Humans, 2007* and is conducted

according to the ICH Harmonised Tripartite, Good Clinical Practice Guidelines and the *World Medical Association Declaration of Helsinki 2000*.

## **CONDITIONS**

You must seek approval from the Director-General for the release of information for the purposes of research under the provision of Section 281 of the *Public Health Act 2005*. ([http://www.health.qld.gov.au/ohmr/html/regu/aces\\_conf\\_hth\\_info.asp](http://www.health.qld.gov.au/ohmr/html/regu/aces_conf_hth_info.asp))

## **IMMEDIATE NOTIFICATION<sup>1</sup>**

As a condition of approval, the Committee requires investigators to promptly report to the Ethics Officer anything which might affect ethical acceptance of the study, including:

- Proposed changes in the protocol.
- Unforeseen events that might affect continued ethical acceptability of the study e.g. adverse effects on participants. ([http://www.health.qld.gov.au/ohmr/documents/sae\\_local\\_site.doc](http://www.health.qld.gov.au/ohmr/documents/sae_local_site.doc))
- Any complaints or expressions of concern made in relation to the study.
- You are also required to notify the Committee on completion or cessation of the study.

## **DATA COLLECTION**

- The data collected for the purpose of this research project cannot be used for any other purpose without the approval of the DDWMHSD HREC. Requests to use this data for other purposes must be made in the form of a formal research proposal.
- All patient information relating to a research project must comply with the QH Retention and Disposal Schedule and in line with *National Statement on the Ethical Conduct of Human Research 2007* and *Australian Code for the Responsible Conduct of Research (2007)*
- All research data including electronic data is to be stored by the principal for **15 years** after the research has been completed or after the last contact, whichever is the later. Data must be recorded in a durable and appropriately referenced form and comply with relevant privacy protocols
- When researchers require access and use without consent of confidential information held by Queensland Health for the purposes of research, the provisions of the Public Health Act 2005 Chapter 6, Part 4, Division 2, s281 – s284 must be considered following receipt of this approval letter. ([http://www.health.qld.gov.au/ohmr/html/regu/aces\\_conf\\_hth\\_info.asp](http://www.health.qld.gov.au/ohmr/html/regu/aces_conf_hth_info.asp))
- When conducting research within District facilities:
  - You are required to have this letter in your possession, as it is validation of research approval.
  - An ID needs to be worn.

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<sup>1</sup> Please Refer To The National Statement On Ethical Conduct In Human Research (2007) Chapter 5.5: Monitoring Approved Research, [http://nhmrc.gov.au/publications/ethics/2007\\_humans/section5.5.htm](http://nhmrc.gov.au/publications/ethics/2007_humans/section5.5.htm)

- The first point of contact on commencing research is the senior clinical staff person in the facility area.

**MONITORING and REVIEW**

An NHMRC requirement is that ethics committees monitor approved research:

- Every 12 months after initial approval, you are required to complete and return an annual report form to maintain your approval status. The form may be found at the following URL address: [http://www.health.qld.gov.au/ohmr/html/regu/reporting\\_templates.asp](http://www.health.qld.gov.au/ohmr/html/regu/reporting_templates.asp)  
[http://www.health.qld.gov.au/ohmr/documents/annual\\_rep\\_hrec.doc](http://www.health.qld.gov.au/ohmr/documents/annual_rep_hrec.doc)
- A report is required on completion of your research, this may take the form of a brief summary of findings or a paper submitted for publication. The form may be found at the URL address listed above.
- The ethics committee may choose to conduct an interim audit of your research.
- If the results of your project are to be published, please ensure that a copy of any publication or thesis is forwarded to the West Moreton Health Library for future reference.
- You are required to sign and return this approval document (keep a copy for your files) to denote that you will follow all the conditions listed.
- Please return the form to the Ethics Officer, DDWMHSD Human Research Ethics Committee, The Park – Centre for Mental Health, Locked Bag 500, Sumner Park BC, QLD 4074.

We wish you every success in your work.

*Jacqueline Robinson, RN, BAA LLM*

Jacqueline Robinson, RN, BAA, LLM

Co- Chair, Ethics Officer / RGO

DDWMHSD Human Research Ethics Committee

18<sup>th</sup> May 2011

**Acceptance of Conditions of Approval**

I \_\_\_\_\_ acknowledge receipt of approval to undertake the above-mentioned study and agree to meet all of the above conditions.

Title	First name	Surname
Position	Organisation name	
SIGNATURE	DATE	

# APPENDIX C: PERMISSION FROM THE UNIVERSITY OF SYDNEY ETHICS COMMITTEE



**RESEARCH INTEGRITY**  
**Human Research Ethics Committee**  
Web: [http://sydney.edu.au/research\\_support/ethics/human/](http://sydney.edu.au/research_support/ethics/human/)  
Email: [ro.humanethics@sydney.edu.au](mailto:ro.humanethics@sydney.edu.au)  
**Address for all correspondence:**  
Level 6, Jane Foss Russell Building - G02  
The University of Sydney  
NSW 2006 AUSTRALIA

Ref: SA/KR

21 July 2011

Associate Professor Jennifer Fraser  
Sydney Nursing School  
The University of Sydney  
Email: [jfraser@sydney.edu.au](mailto:jfraser@sydney.edu.au)

Dear Professor Fraser

**Title: Intensity of intervention, strength of engagement and relationship to outcomes in a nurse-led home visiting program for new parents: a pilot study [Protocol No. 13995]**

**Masters Student: Ms Tara Flemington**

The Executive of the Human Research Ethics Committee (HREC), has reviewed your study to include the Masters student – Ms Tara Flemington and acknowledges your right to proceed under the authority of Darling Downs - West Moreton Health Service District Human Research Ethics Committee.

The Human Research Ethics Committee advises that you consult with The University of Sydney **Audit and Risk Management Office** ([http://sydney.edu.au/audit\\_risk/](http://sydney.edu.au/audit_risk/)) to ensure that University of staff/students and premises are adequately covered for the purpose of conducting this research project.

Any modifications to the study must be approved by Darling Downs - West Moreton Health Service District Human Research Ethics Committee. A copy of the approved modification, approved progress report and any new approved documents must be provided to The University of Sydney HREC for our records.

Please do not hesitate to contact Research Integrity (Human Ethics) should you require further information or clarification.

Yours sincerely

A handwritten signature in black ink, appearing to read 'S. J. Assinder'.

**Dr Stephen Assinder**  
**Chair**  
**Human Research Ethics Committee**

cc: Ms Tara Flemington [Email: [tfe7215@uni.sydney.edu.au](mailto:tfe7215@uni.sydney.edu.au)]

**Manager Human Ethics**  
Dr Margaret Faedo  
T: +61 2 8627 8176  
E: [margaret.faedo@sydney.edu.au](mailto:margaret.faedo@sydney.edu.au)

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Ms Karen Greer T: +61 2 8627 8171 E: [karen.greer@sydney.edu.au](mailto:karen.greer@sydney.edu.au)  
Ms Patricia Engelmann T: +61 2 8627 8172 E: [patricia.engelmann@sydney.edu.au](mailto:patricia.engelmann@sydney.edu.au)  
Ms Kala Retnam T: +61 2 8627 8173 E: [kala.retnam@sydney.edu.au](mailto:kala.retnam@sydney.edu.au)

ABN 15 211 513 464  
CRICOS 00026A



## APPENDIX D: EDINBURGH POSTNATAL DEPRESSION SCALE

### EDINBURGH POSTNATAL DEPRESSION SCALE

We would like to know how you are feeling, now that you are expecting a baby.

Please **CIRCLE** the answer which comes closest to how you have felt in the **PAST 7 DAYS** - not just how you feel today.

Here is an example, already completed:

I have felt happy:

0. Yes, all the time
1. Yes, most of the time
2. No, not very often
3. No, not at all

*This would mean "I have felt happy most of the time during the past week".*

Please **CIRCLE** the answer which comes closest to how you have felt in the **PAST 7 DAYS** - not just how you feel today.

Please answer the following 10 questions by circling the appropriate number.

**1. I have been able to laugh and see the funny side of things –**

0. As much as I always could
1. Not quite so much now
2. Definitely not so much now
3. Not at all

**2. I have looked forward with enjoyment to things -**

0. As much as I ever did
1. Rather less than I used to

2. Definitely less than I used to
3. Hardly at all

**3. I have blamed myself unnecessarily when things went wrong -**

0. Yes, most of the time
1. Yes, some of the time
2. Not very often
3. No, never

**4. I have been anxious or worried for no good reason -**

0. No, not at all
1. Hardly ever
2. Yes, sometimes
3. Yes, very often

**5. I have felt scared or panicky for no good reason -**

0. Yes, quite a lot
1. Yes, sometimes
2. No, not much
3. No, not at all

**EDINBURGH POST NATAL DEPRESSION SCALE - continued**

**Please CIRCLE the answer which comes closest to how you have felt in the PAST 7 DAYS - not just how you feel today.**

**Please answer the following 10 questions by circling the appropriate number.**

**6. Things have been getting on top of me -**

0. Yes, most of the time I haven't been able to cope at all
1. Yes, sometimes I haven't been coping as well as usual
2. No, most of the time I have coped quite well
3. No, I have been coping as well as ever

**7. I have been so unhappy that I have had difficulty sleeping -**

0. Yes, most of the time
1. Yes, sometimes
2. Not very often
3. No, not at all

**8. I have felt sad or miserable -**

0. Yes, most of the time
1. Yes, quite often
2. Not very often
3. No, not at all

**9. I have been so unhappy that I have been crying -**

0. Yes, most of the time
1. Yes, quite often
2. Only occasionally
3. No, never

**10. The thought of harming myself has occurred to me -**

0. Yes, quite often
1. Sometimes
2. Hardly ever
3. Never

## APPENDIX E: CHILD ABUSE POTENTIAL INVENTORY

### ABOUT YOUR BELIEFS

The following questionnaire includes a series of statements which may be applied to you. Read each of the statements and determine if you AGREE or DISAGREE with the statement. If you agree with a statement, circle A for agree. If you disagree with a statement, circle DA for disagree. Be honest when giving your answers. Remember to read each statement; it is important not to skip any statement and only Circle ONE response.

- |   |   |    |
|---|---|----|
| 1. I never feel sorry for others .....                                  | A | DA |
| 2. I enjoy having pets.....   | A | DA |
| 3. I have always been strong and healthy .....                          | A | DA |
| 4. I like most people.....  | A | DA |
| 5. I am a confused person.....  | A | DA |
| 6. I do not trust most people.....                                      | A | DA |
| 7. People expect too much from me.....                                  | A | DA |
| 8. Children should never be bad.....                                    | A | DA |
| 9. I am often mixed up .....  | A | DA |
| 10. Spanking that only bruises a child is okay .....                    | A | DA |
| 11. I always try to check on my child when it's crying.....             | A | DA |
| 12. I sometimes act without thinking.....                               | A | DA |
| 13. You cannot depend on others .....                                   | A | DA |
| 14. I am a happy person.....  | A | DA |
| 15. I like to do things with my family .....                            | A | DA |
| 16. Teenage girls need to be protected.....                             | A | DA |
| 17. I am often angry inside .....                                       | A | DA |
| 18. Sometimes I feel all alone in the world .....                       | A | DA |
| 19. Everything in a home should always be in it's place .....           | A | DA |
| 20. I sometimes worry that I cannot meet the needs of a child.....      | A | DA |
| 21. Knives are dangerous for children.....                              | A | DA |
| 22. Often feel rejected .....   | A | DA |
| 23. I am often lonely inside.....                                       | A | DA |
| 24. Little boys should never learn sissy games .....                    | A | DA |
| 25. I often feel very frustrated.....                                   | A | DA |
| 26. Children should never disobey .....                                 | A | DA |
| 27. I love all children .....   | A | DA |
| 28. Sometimes I fear that I will lose control of myself .....           | A | DA |
| 29. I sometimes wish that my father would have loved me more .....      | A | DA |
| 30. I have a child who is clumsy .....                                  | A | DA |
| 31. I know what is the right and wrong way to act .....                 | A | DA |
| 32. My telephone number is unlisted.....                                | A | DA |
| 33. The birth of a child will usually cause problems in a marriage..... | A | DA |
| 34. I am always a good person .....                                     | A | DA |
| 35. I never worry about my health .....                                 | A | DA |
| 36. I sometimes worry that I will not have enough to eat.....           | A | DA |

37. I have never wanted to hurt someone else ..... A DA
38. I am an unlucky person ..... A DA
39. I am usually a quiet person ..... A DA
40. Children are pests ..... A DA
41. Things have usually gone against me in life ..... A DA
42. Picking up a baby whenever he cries spoils him ..... A DA
43. I sometimes am very quiet ..... A DA
44. I sometimes lose my temper ..... A DA
45. I have a child who is bad ..... A DA
46. I sometimes think of myself first ..... A DA
47. I sometimes feel worthless ..... A DA
48. My parents did not really care about me ..... A DA
49. I am sometimes very sad ..... A DA
50. Children are really little adults ..... A DA
51. I have a child who breaks things ..... A DA
52. I often feel worried ..... A DA
53. It is okay to let a child stay in dirty diapers for a while ..... A DA
54. A child should never talk back ..... A DA
55. Sometimes my behaviour is childish ..... A DA
56. I am often easily upset ..... A DA
57. Sometimes I have bad thoughts ..... A DA
58. Everyone must think of himself first ..... A DA
59. A crying child will never be happy ..... A DA
60. I have never hated another person ..... A DA
61. Children should not learn how to swim ..... A DA
62. I always do what is right ..... A DA
63. I am often worried inside ..... A DA
64. I have a child who is sick a lot ..... A DA
65. Sometimes I do not like the way I act ..... A DA
66. I sometimes fail to keep all of my promises ..... A DA
67. People have caused me a lot of pain ..... A DA
68. Children should stay clean ..... A DA
69. I have a child who gets into trouble a lot ..... A DA
70. I never get mad at others ..... A DA
71. I always get along with others ..... A DA
72. I often think about what I have to do ..... A DA
73. I find it hard to relax ..... A DA
74. These days a person doesn't really know on whom one can count ..... A DA
75. My life is happy ..... A DA
76. I have a physical handicap ..... A DA
77. Children should have play clothes and good clothes ..... A DA
78. Other people do not understand how I feel ..... A DA
79. A five year old who wets his bed is bad ..... A DA
80. Children should be quiet and listen ..... A DA
81. I have several close friends in my neighbourhood ..... A DA
82. The school is primarily responsible for educating the child ..... A DA
83. My family fights a lot ..... A DA
84. I have headaches ..... A DA
85. As a child I was abused ..... A DA


Spanking is the best punishment.....	A DA
86. I do not like to be touched by others.....	A DA
87. People who ask for help are weak .....	A DA
88. Children should be washed before bed .....	A DA
89. I do not laugh very much.....	A DA
90. I have several close friends .....	A DA
91. People should take care of their own needs.....	A DA
92. I have fears no one knows about.....	A DA
93. My family has problems getting along.....	A DA
94. Life often seems useless to me .....	A DA
95. A child should be potty trained by the time he's one year old.....	A DA
96. A child in a mud puddle is a happy sight.....	A DA
97. People do not understand me .....	A DA
98. I often feel worthless.....	A DA
100. Other people have made my life unhappy.....	A DA
101. I am always a kind person .....	A DA
102. Sometimes I do not know why I act as I do .....	A DA
103. I have many personal problems .....	A DA
104. I have a child who often hurts himself .....	A DA
105. I often feel very upset .....	A DA
106. People sometimes take advantage of me .....	A DA
107. My life is good.....	A DA
108. A home should be spotless .....	A DA
109. I am easily upset by my problems.....	A DA
110. I never listen to gossip.....	A DA
111. My parents did not understand me.....	A DA
112. Many things in life make me angry.....	A DA
113. My child has special problems.....	A DA
114. I do not like most children .....	A DA
115. Children should be seen and not heard.....	A DA
116. Most children should never disobey.....	A DA
117. It is most important for children to read .....	A DA
118. I am often depressed .....	A DA
119. Children should occasionally be thoughtful of their parents.....	A DA
120. I am often upset.....	A DA
121. People don't get along with me .....	A DA
122. A good child keeps his toys and clothes neat and orderly .....	A DA
123. Children should always make their parents happy.....	A DA
124. It is natural for a child to sometimes talk back .....	A DA
125. I am never unfair to others .....	A DA
126. Occasionally, I enjoy not having to take care of my child.....	A DA
127. Children should always be neat .....	A DA
128. I have a child who is slow .....	A DA
129. A parent must use punishment if he wants to control a child's behaviour .....	A DA
130. Children should never cause trouble.....	A DA

131. I usually punish my child when it is crying..... A DA
132. A child needs very strict rules ..... A DA
133. Children should never go against their parents' orders..... A DA
134. I often feel better than others ..... A DA
135. Children sometimes get on my nerves ..... A DA
136. As a child I was often afraid ..... A DA
137. Children should always be quiet and polite ..... A DA
138. I am often upset and do not know why ..... A DA
139. My daily work upsets me ..... A DA
140. I sometimes fear that my children will not love me ..... A DA
141. I have a good sex life ..... A DA
142. I have read articles and books on child rearing ..... A DA
143. I often feel very alone ..... A DA
144. People should not show anger ..... A DA
145. I often feel alone ..... A DA
146. I sometimes say bad words ..... A DA
147. Right now, I am deeply in love..... A DA
148. My family has many problems ..... A DA
149. I never do anything that is bad for my health..... A DA
150. I am always happy with what I have..... A DA
151. Other people have made my life hard..... A DA
152. I laugh some almost every day..... A DA
153. I sometimes worry that my needs will not be met..... A DA
154. I often feel afraid..... A DA
155. I sometimes act silly ..... A DA
156. A person should keep his business to himself..... A DA
157. I never raise my voice in anger..... A DA
158. As a child I was knocked around by my parents ..... A DA
159. I sometimes think of myself before others ..... A DA
160. I always tell the truth..... A DA

## APPENDIX F: DEMOGRAPHIC QUESTIONNAIRE

### BRISBANE EVALUATION OF NEEDS QUESTIONNAIRE

The following questions refer to you and your family. Please answer questions on the line beside each question or put a cross over each circle that applies to you. (Numbers beside boxes are for office use only). Mark one box only unless otherwise indicated.

e.g. 

1. Your age in years last birthday \_\_\_\_\_
  
2. What is your marital status?  
(1) Single  (4) Divorced   
(2) Married  (5) Separated   
(3) Defacto  (6) Widowed
  
3. Is this your first child? (1) Yes  (2) No
  
4. Are you a sole parent? (1) Yes  (2) No
  
5. If applicable, your partner's age in years last birthday \_\_\_\_\_
  
6. Pregnancy gestation (week of pregnancy) at time of assessment  
\_\_\_\_\_
  
7. How far along your pregnancy were you when you found out you were pregnant?  
Number of weeks \_\_\_\_\_
  
8. At present, are you worried that you may not have a home for you and your baby?  
(1) Yes  (2) No



9. How often are you worried about having enough money to get essential food for yourself and family?

- (1) Never  (4) Rarely   
(2) Sometimes  (5) Often   
(3) Always

10. Over the past 2 years, how many times have you moved address?

- (1) Never  (4) 3 times   
(2) Once  (5) More than 3 times   
(3) Twice

11. Please indicate your highest education level from the list below

- (1) Completed Year 12 or more  (5) Some Primary School   
(2) Completed Year 10  (6) Did not go to school   
(3) Some High School  (7) Special School   
(4) Completed Primary School

Further education completed

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12. What country were you born in?

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13. What country was your partner (if applicable) born in?

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14. Do you identify yourself as an Aboriginal or Torres Strait Islander?

- (1) Yes  (2) No

15. Within the last year what has been your main source of income?

- (1) Paid Employment   
(2) Unemployment Benefits   
(3) Disability Pension   
(4) Sole Parenting Allowance   
(5) Other

16. What is your family income before tax (including pensions and allowances)?

- (1) Less than \$172 per week (less than \$9 000 per year)   
(2) \$173 to \$307 per week (\$9 001 to \$16 000 per year)   
(3) \$308 to \$498 per week (\$16 001 to \$26 000 per year)   
(4) \$499 to \$958 per week (\$26 001 to \$50 000 per year)   
(5) Over \$958 per week (over \$50 000 per year)

17. How often are you worried about not having enough money to make ends meet?

(1) Never  (4) Often

(2) Rarely  (5) Always

(3) Sometimes

18. Who will this child live with? (Mark as many boxes as you need here)

(1) Mother  (2) Father

(3) Step-mother  (4) Step-father

(5) Other  Please specify \_\_\_\_\_

19. Is there any Department of Families or Child Safety and Protection involvement with your child/children?

(1) Yes  (2) No

Please specify details

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20. Do you have any other children? (1) Yes  (2) No

If you answered **Yes**, please list the age and gender of these children.

Number					
Gender					
Age					

Do these children attend day care, pre-school, play group or school?

Number	1	2	3	4	5	6	7	8+
No. of days.								
No. of hours.								

21. Have you participated in a parenting program before?

Yes  No

If yes, details of the program/s \_\_\_\_\_

**Support Network**

22. Do you have friends or family (besides your partner, if applicable) who you can ask for help?

(1) Yes  (2) No

Please comment if you wish

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23. My (and if applicable my partner's) closest support people are: (Mark as many boxes as you need here)

- (1) Mother/Father/Step-parent  (4) Sister/Brother   
(2) In-Laws  (5) Other Family   
(3) Aunt/Uncle  (6) Friends   
(7) Other
- 

24. Will these support people be available to help you and your partner (if applicable) following the birth of your baby?

- (1) Yes  (2) No

25. Was this pregnancy

- (1) Planned?  (2) Unplanned?  (3) Planned, but just "not now"?

26. When you first found that you were pregnant, did you seek a termination (abortion) of this pregnancy?

- (1) Yes  (2) No

27. Are you receiving any antenatal care for this pregnancy?

- (1) Yes  (2) No  \_\_\_\_\_ If no, go to Question 30.

28. How many weeks pregnant were you when you made your first appointment with a doctor/midwife/antenatal clinic? \_\_\_\_\_ weeks

### **Family History**

29. Have you ever had counselling or other treatment for a psychiatric illness such as:

- (1) Depression  (4) Other  Please specify \_\_\_\_\_  
(2) Anxiety  (5) No, I have never had such treatment   
(3) Schizophrenia

30. Have you ever suffered from post-natal depression after the birth of a previous child?  
(1) Yes  (2) No  (3) Not Applicable

31. Has your partner ever had counselling or other treatment for a psychiatric illness such as depression / anxiety / schizophrenia/ or other illness?  
(1) Yes  (2) No  (3) Do not know

32. Do you know of anyone in your family (including Aunts, Uncles, and Cousins) who has had psychiatric troubles?  
(1) Yes  (2) No

List who: \_\_\_\_\_  
\_\_\_\_\_

List conditions:

\_\_\_\_\_  
\_\_\_\_\_

33. Is your partner (if applicable) a current substance abuser (e.g. abuses alcohol or other drugs)? (1) Yes  (2) No

34. Do you know of anyone in your family (including aunts, Uncles, Cousins) who has had substance misuse problems? Yes  No

List who: \_\_\_\_\_

35. Do you experience any form of abuse from a partner or family member at home such as (tick as many boxes as you need to here)

- (1) Physical abuse  (4) Threats to hurt you   
(2) Damage to your property  (5) Allowed no money   
(3) Verbal abuse  (6) Being kept away from family or family or friends   
(7) Other   Please specify

\_\_\_\_\_

36. How often are you hit, slapped or otherwise physically hurt in arguments at home?

- (1) Often  (2) Sometimes   
(3) Rarely  (4) Never

We would like you to feel free to comment

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37. Were you abused as a child?

- (1) Yes  (2) No

We would like you to feel free to comment

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38. Was your partner (if applicable) abused as a child?

- (1) Yes  (2) No

We would like you to feel free to comment

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## APPENDIX G: SERVICE UTILISATION QUESTIONNAIRE

### BRISBANE EVALUATION OF NEEDS QUESTIONNAIRE II

Please answer questions on the line beside each question or put a cross over each circle that applies to you. (Numbers beside boxes are for office use only). Mark one box only unless otherwise indicated.

1. How is your baby being fed this week?

- (1) Fully breast fed (Breast milk at all feeds)
- (2) Fully formula fed (eg, Karicare, Nan, S26)
- (3) Given both breast milk and formula
- (4) Other (Please specify)

2. Please indicate which of the following services you have had contact with during pregnancy and since giving birth by ticking the appropriate box:

Service	No Contact	Contact during pregnancy	Contact since birth of infant
Early Discharge Program Midwife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child Health Nurse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child Health Clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group program at Child Health Clinic. Please list details of group/s title:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group program at another service. Please list details of service provider and group/s title	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



(e.g. Young Peoples Health Service):			
Local Doctor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social Worker. Please list details of the provider of this service (e.g. Young Peoples Health Service; Aboriginal Health Service):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatrist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychologist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Counsellor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Any other services. Please list details:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Are you receiving treatment for a psychiatric illness since the birth of your child?

(1) Depression  (4) Other

Please specify \_\_\_\_\_

(2) Anxiety  (5) No

(3) Schizophrenia

4. Please indicate the type of treatment you are having.

(1) Medication

Please specify medication name & dosage \_\_\_\_\_

(2) Counselling

(3) Hospitalisation

5. Since the baby's birth, how often has a Community Child Health Nurse (Family CARE nurse) visited you at home?

Location	Number of visits
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	