View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by Sydney eScholarship

THE UNIVERSITY OF SYDNEY

COPYRIGHT AND USE OF THIS THESIS

This thesis must be used in accordance with the provisions of the Copyright Act 1968.

Reproduction of material protected by copyright may be an infringement of copyright and copyright owners may be entitled to take legal action against persons who infringe their copyright.

Section 51 (2) of the Copyright Act permits an authorized officer of a university library or archives to provide a copy (by communication or otherwise) of an unpublished thesis kept in the library or archives, to a person who satisfies the authorized officer that he or she requires the reproduction for the purposes of research or study.

The Copyright Act grants the creator of a work a number of moral rights, specifically the right of attribution, the right against false attribution and the right of integrity.

You may infringe the author's moral rights if you:

- fail to acknowledge the author of this thesis if you quote sections from the work
- attribute this thesis to another author
- subject this thesis to derogatory treatment which may prejudice the author's reputation

For further information contact the University's Director of Copyright Services

sydney.edu.au/copyright

ENHANCING THE REACH AND IMPACT OF PARENTING INTERVENTIONS FOR TODDLER EXTERNALISING AND AGGRESSIVE BEHAVIOURS

THE UNIVERSITY OF SYDNEY

Lucy A. Tully

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy, School of Psychology

Faculty of Science

University of Sydney

2014

DECLARATION

I hereby certify that the work embodied in this thesis is the result of original research and has not been submitted for a higher degree to another university or institution.

Lucy Tully

October 2014

ACKNOWLEDGEMENTS

It may take a village to raise a child, but it also takes one to complete a PhD, and I could not have done this research without the enormous support and help from several groups of people. First and foremost, I would like to thank my family for their encouragement, support and assistance, particularly to my wonderfully supportive husband David and son, Oscar. I could not have does this without you both and I am enormously grateful.

Sincere thanks to my primary supervisor, Associate Professor Caroline Hunt, for her guidance, support and enthusiasm, and also to my associate supervisors Dr Maree Abbott and Professor Matthew Sanders for their involvement and encouragement. Thanks also to the five skilled Doctor of Clinical Psychology students who assisted me with the group parenting interventions: Lauren Roche, Gemma Easter, Aidan Kelly, Sarah Kezelman and Sarah Watts. I was extremely lucky to have two wonderfully motivated and hard working volunteers to code the observational data for this study, Lauren Harvey and Theodora Yip. I greatly appreciate your time, effort and dedication to this task, and I am indebted to you both for your efforts. My thanks also go to three staff members at the University of Sydney Psychology Clinic who facilitated my use of the Clinic facilities: Judy Hyde, Belinda Ingram and Helen Murray. My appreciation and thanks to the NSW Institute of Psychiatry for providing me with a training fellowship in research in 2012. Finally, I would like to express my sincere thanks to the 69 families who gave up their very valuable time to take part in this research.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AL	Adolescence Limited
BPI	Brief Parenting Intervention
CBCL	Child Behaviour Checklist
CD	Conduct Disorder
CONSORT	Consolidated Standards of Reporting Trials
DASS	Depression Anxiety and Stress Scale
DBD	Disruptive Behaviour Disorders
LCP	Life Course Persistent
LX	Laxness
NICHD	National Institute of Child Health and Human Development
ODD	Oppositional Defiant Disorder
OR	Overreactivity
PA-SEC	Physical Aggression Scale for Early Childhood
PS	Parenting Scale
PTC	Parenting Task Checklist
QMI	Quality of Marriage Index
RCT	Randomised Controlled Trial
SPI	Standard Parenting Intervention
VB	Verbosity
WL	Waitlist

ABSTRACT

Childhood externalising behaviours are associated with significant impairments in functioning and long-term negative outcomes. Physical aggression in the toddler years is both common and developmentally normal, however, longitudinal research shows that frequent physical aggression is highly stable over time and is a more robust risk factor for offending in adolescence and adulthood than other externalising behaviours. This thesis is concerned with enhancing the reach and impact of parenting interventions for toddler externalising and aggressive behaviour. Thirty years of research has demonstrated the efficacy of social learning based parenting interventions, typically 8 to 12 sessions in duration, for reducing externalising behaviour problems in childhood. However, the length of standard parenting interventions may overburden families and lead to low participation rates and high attrition rates; it may also prevent primary care health practitioners from implementing them as prescribed. Brief parenting interventions, delivered as part of a stepped care approach, may have the potential to increase the reach of parenting interventions and in turn, impact on externalising behaviour problems at the population level.

This thesis reports on the findings of a randomised controlled trial which compared a standard 8 session parenting intervention to a brief 3 session intervention and a waitlist control group for reducing toddler externalising and aggressive behaviours, dysfunctional parenting and related aspects of parent functioning. Sixty-nine self-referred families with a toddler with aggressive behaviour were randomised to the respective conditions. At post-assessment, families who

received the 8 session intervention showed significantly lower levels of observed child aversive behaviour, mother-rated child externalising and aggressive behaviours, dysfunctional parenting and higher levels of behavioural self-efficacy compared with waitlist. Families who received the 8 session intervention also reported lower levels of mother-rated dysfunctional parenting compared with those who received the 3 session intervention. Families who received the 3 session intervention differed from waitlist on one measure of mother-rated dysfunctional parenting. No significant group differences emerged at post-assessment for measures of parental negative affect or satisfaction with the partner relationship according to mothers, or for any father-rated measures (with the exception of behavioural self-efficacy). By six month follow-up, families who received the 8 session intervention did not differ significantly from families who received the 3 session intervention on any measure. Both mothers and fathers who received the 8 session intervention were significantly more satisfied with the intervention than those who received the 3 session intervention.

Overall, the findings show greater short-term impacts of the 8 session relative to the 3 session intervention. However, medium effect sizes were found for the brief parenting intervention relative to waitlist for child aggressive behaviour and dysfunctional parenting. These effect sizes were similar to those reported in the literature for longer parenting interventions but the current study was underpowered to detect such effects. While this study provides some initial evidence that a brief parenting intervention may have significant effects on dysfunctional parenting, and may offer promise as the first step in a stepped care models of delivery, further research is needed.

CHAPTER 1

EXTERNALISING BEHAVIOUR PROBLEMS

1.1 The nature, prevalence and significance of externalising behaviour problems

Externalising behaviour problems include behaviours that are manifested in children's outward behaviour toward the external environment and include aggression, temper tantrums, non-compliance, inattention and poor impulse control. In comparison, internalising problems affect the child's internal psychological environment and include behaviours which are anxious, depressed, inhibited or withdrawn (Liu, 2004). Estimates of the number of children suffering from internalising and externalising problems vary widely between 5 and 26% (Brauner and Stephens, 2006), with recent estimates from the USA of around 18% for children aged 3-17 years (Houtrow & Okumura, 2011). In Australia, behavioural problems affect 14.1% of children aged 4- 17 years with 12.9% showing clinical levels of externalising behaviour problems (Sawyer et al., 2001). During the preschool years, prevalence estimates of externalising and internalising problems range from 7% to 24% with the majority falling between 10% and 15% (see Carter, Briggs-Gowen & Davis, 2004).

Externalising behaviour problems are also known as 'conduct problems' and 'antisocial behaviours', and these behaviours can lead to a diagnosis of Oppositional Defiant Disorder (ODD), Attention Deficit Hyperactivity Disorder (ADHD) and/or Conduct Disorder (CD). Together ODD and CD are also known as 'disruptive

behaviour disorders' (DBDs). The lifetime prevalence of these disorders has been estimated at 8.5% for ODD, 9.5% for CD and 8.1% for ADHD (Kessler, 2005). There is significant overlap or 'comorbidity' in these disorders, with estimates in clinical settings suggesting that children with ODD/CD or ADHD average a 50% overlap in symptoms (Waschbusch, 2002). There is also comorbidity between externalising and internalising problems (Angold, Costello & Erkanli, 1999) particularly between ODD and depression/anxiety (Copeland et al., 2013).

Externalising behaviour problems are associated with significant impairments in social, emotional and educational functioning (Campbell et al., 2006; Moilanen, Shaw & Maxwell, 2010) and are the main reason for referral to child and adolescent mental health services (Kazdin, 1995, 2008). Longitudinal research has demonstrated that childhood externalising behaviours lead to significant long-term negative outcomes such as school dropout, family breakdown, alcohol abuse, violence, employment difficulties, poor physical health and adult psychiatric disorders such as antisocial personality disorder (Colman et al., 2009; Fergusson, Horwood & Ridder, 2005; Odgers et al., 2007, 2008). In fact childhood ODD and/or CD has been identified in the developmental history of a broad range of adult mental health disorders including depressive disorders, anxiety disorders, substance use disorders and schizophreniform disorders (Kim-Cohen et al., 2003). Children with DBDs account for similar health care costs when compared with children with chronic health conditions such as asthma or diabetes (Guevara et al., 2003). The public cost of CD, in particular, is significant and has been estimated at over US$70,000 per child over 7 years and this estimate does not include social costs such as crime-related costs (Foster & Jones, 2005).

Of all the externalising behaviours, significant research has specifically focussed on physical aggression in children since it is a core feature of ODD and CD, it is linked to offending in adolescence and adulthood, and is itself considered to be a major public health problem (Pettit & Dodge, 2003; Tremblay et al., 2004). Physical aggression emerges early in life and while it is part of most children's developmental repertoire (Côté et al., 2006), longitudinal research (which will be reviewed in detail later in this chapter) has demonstrated considerable continuity from the early childhood years (Tremblay, 2010). Research has also demonstrated that chronic aggression is a more important risk factor for violent and non-violent offending (Broidy et al., 2003; Nagin & Tremblay, 1999; Pingault et al., 2013) as well as lower academic achievement (Brennan, Shaw, Dishion & Wilson, 2012) when compared to other externalising behaviour problems. Physical aggression in childhood is therefore an important target for early intervention.

The focus of this thesis is on extending the reach and impact of parenting interventions for externalising and aggressive behaviours in toddlers. This chapter focuses on research into the developmental trajectories of externalising and aggressive behaviour problems. It also provides an overview of risk factors for these behaviours, the most proximal of which relates to dysfunctional parenting practices. Chapter 2 examines the efficacy of parenting interventions to reduce dysfunctional parenting and child externalising behaviours, it describes the limited reach and impact of *standard* duration parenting interventions, and the need for research on *brief* interventions. Chapter 3 presents a systematic review of the literature on the efficacy and effectiveness of brief parenting interventions. Chapter 4 presents the findings of a randomised controlled trial (RCT) of the effects of brief versus standard

group parenting interventions and waitlist control group for reducing toddler externalising and aggressive behaviour. This is the first RCT to compare these two formats, and the findings have the potential to change the way parenting programs are delivered and to extend the reach and impact of parenting interventions. Finally, Chapter 5 discusses the findings of the RCT and the implications for practice.

1.2 Developmental trajectories of externalising and aggressive behaviours

Over the past ten years there has been increasing research on externalising behaviour problems in early childhood, driven in part by evidence regarding age of onset and developmental trajectories of externalising behaviours (Tremblay, 2000). The trajectory of externalising behaviours is made up of two dimensions: (1) the frequency of the behaviours at a particular age and (2) the change in the frequency of behaviours over time (Miner & Clarke-Stewart, 2008). Studies of the trajectories of externalising behaviours have consistently found that these behaviours commence in the first to second year of life, generally peak around ages 2 or 3, and then decline in frequency from about age 4 onwards (Alink et al., 2006; Bongers, Koot, van der Ende & Verhurlst 2003; NICHD Early Child Care Research Network, 2004; Kraatz Keiley, Bates, Dodge & Pettit, 2000; Miner & Clarke-Stewart, 2008; Tremblay et al., 1999, 2004). This natural decline in frequency suggests that many children simply learn to self-regulate or inhibit aggressive and oppositional responses, possibly as a consequence of developing theory of mind and more sophisticated language and emotional regulation skills (Alink et al., 2006). However, the natural decline in frequency of externalising behaviours does not occur for all children.

Children who start out with more frequent externalising behaviours in the toddler and preschool years tend to show a stable trajectory over time. Several

studies have found moderate stability for externalising behaviours in early childhood (Alink et al., 2006; Briggs-Gowan et al., 2006; Briggs-Gowan & Carter, 2008; Campbell et al., 1991, 1994; Cummings, Ianotti & Zahn-Waxler, 1989; Keenan et al., 1998; Keenan & Shaw, 1994; Mesman et al., 2008; Van Zeigl et al., 2006). For example, Briggs-Gowen et al. (2006) found that approximately half of the infants and toddlers who were reported to have high social-emotional and behavioural problems continued to have such problems approximately 1 year later. Briggs-Gowen and Carter (2008) found that more than one half of children who were identified by parents and/or teachers as having significant emotional or behavioural problems in early primary school were already experiencing problems at 12 to 36 months. Similarly, Campbell et al. (1991, 1994) found that approximately 50% of children with externalising behaviours at age 3 showed clinically significant problems at age 6 and 9.

Physical aggression in particular shows high rates of stability from an early age. Olweus' (1979) meta-analysis of 16 longitudinal studies of aggression in boys led to the conclusion that by the age of 3 years, aggression was nearly as stable as intelligence. Cummings, Ianotti and Zahn-Waxler (1989) found high stability of physical aggression in boys from ages 2 to 5 (correlations ranging as high as r = 0.76). Van Zeijl et al. (2006) showed the one year stability of aggressive behaviours was significant, even from 12 months of age. Similarly, Alink et al. (2006) found moderate 1-year stability of physical aggression for 1 year olds (r = 0.49) and high stability for ages 2 and 3 (r = 0.63 and r =0.72 respectively). While the majority of studies have only explored stability of aggression over a few years, research has also shown that there is considerable stability in externalising and aggressive

behaviours from early childhood to adolescence (van Beijsterveldt, Bartels, Hudziak & Boomsma, 2003), and even into adulthood (Reef et al., 2010). There is also some evidence that physical aggression is significantly more stable over childhood when compared with non-aggressive conduct problems. For example, in an accelerated longitudinal study Stanger, Achenbach and Velhurst (1997) found mean predictive correlations were higher over each time interval (2, 4, 6 and 8 years) for aggressive (r = 0.48 to r = 0.69) than non-aggressive (r = 0.35 to r = 0.51) behaviours.

As well as demonstrating the stability of high rates of externalising behaviours over time, research on trajectories of externalising behaviours have also identified clusters of individuals who share common developmental patterns of externalising behaviours. A significant amount of research on the trajectories of externalising behaviours has specifically focussed on physical aggression in an effort to understand the developmental pathways to violence in adolescence and adulthood. Across differing samples, longitudinal research has consistency found three to four trajectories of aggressive behaviour from toddlerhood through childhood and even into early adolescence. These trajectories include: (1) a group showing high stable levels of physical aggression, (2) one or more groups showing varying types of decreasing levels aggression and (3) a group showing consistently low levels of aggression (Brame, Nagin & Tremblay, 2001; Broidy et al 2003; Côté et al., 2006; Nagin & Tremblay, 1999; NICHD Early Child Care Research Network, 2004; Shaw, Gilliom, Ingoldsby, & Nagin, 2003; Tremblay et al., 2004). Importantly, no study identified a trajectory of rising aggression over time which suggests that children who are not aggressive during early childhood are unlikely to develop clinically elevated levels of aggressive behaviour in later years.

Of the studies on developmental trajectories of aggression, four have commenced in the toddler or preschool period. Firstly, Côté et al. (2006) examined the developmental trajectories of physical aggression from toddler years to pre-adolescence (ages 2 to 11) using a community sample of more than 10,000 children in Canada. This study found that toddlers who used occasional or infrequent physical aggression followed declining trajectories, while those who used it frequently were at risk of remaining on a high level trajectory throughout childhood. Overall, about 17% of children were found to be on a high stable trajectory from the toddler years to pre-adolescence. Second, Tremblay et al. (2004) examined the trajectories of physical aggression in a random population sample of 502 Canadian children who were assessed four times between 17 and 42 months and found that 14% of children showed a rising trajectory of high levels of aggression. Third, Shaw, Gilliom, Ingoldsby and Nagin (2003) examined trajectories of aggression from 2 to 8 years in 284 low-income boys and found 5.5% showed a persistently high level of physical aggression. Finally, NICHD Early Child Care Research Network (2004) examined trajectories from 2 to 9 years in a study of 1364 children in USA and found two trajectories of stable aggression instead of one: a moderately stable group comprising 15% of the sample and a high stable group comprising 3% of the sample.

A follow-up of the NICHD Early Child Care Research Network (2004) sample was conducted when the children were aged 9 to12 years. This follow-up found that children in the high stable group showed the most severe adjustment problems, including poorer social skills, high levels of externalising behaviour and more self-reported peer problems (Campbell et al., 2006). However, they also found that the moderately stable group showed poorer regulation and inattention than their very low

aggression peers. Together, the findings of these studies suggest that while most children show only low to moderate levels of physical aggression that decrease with age, there is small group of children (ranging from 3 to17%) who show moderate or high levels of aggression which continue throughout childhood and these children show poor long-term outcomes. These children are said to display 'chronic' physical aggression, which Tremblay (2010) defines as the tendency to use physical aggression more frequently than the large majority of children over many years. The findings of these studies also suggest that children who go on to show chronic physical aggression can be identified by their developmentally excessive levels of aggression in the early childhood years.

1.3 Physical aggression is more important than other externalising behaviours

In addition to research demonstrating the stability of high rates of physical aggression throughout childhood, longitudinal research also indicates that physical aggression may be a more important risk factor for adverse long term outcomes when compared with other externalising behaviours. In a ten year longitudinal study of a high risk sample of 1037 Canadian boys, Nagin and Tremblay (1999) found that chronic physical aggression between the ages of 6 and 15 years led to physically violent juvenile delinquency whereas chronic oppositional behaviour and hyperactivity did not. Broidy et al. (2003) examined longitudinal data from six sites and three countries (Canada, USA and New Zealand) to explore the developmental course of physical aggression and its link to violent and nonviolent offending in adolescence. Consistent with the findings of Nagin and Tremblay (1999), chronic physical aggression during the primary school years was found to increase the risk of both violent and non-violent offending, whereas chronic oppositional and

hyperactive behaviour did not. Similarly, in a 19 year prospective longitudinal study of 2741 children in the community who were assessed annually between the ages of 6 and 12, and criminal records were subsequently obtained when subjects were aged 25 years, high levels of physical aggression between ages 6 and 12 was strongly predictive of having a criminal record at age 25 whereas high levels of hyperactivity or inattention were not (Pingault et al., 2013).

Early physical aggression has also been found to be a more important predictor of academic performance when compared with other externalising behaviours. In a sample of 566 high risk children and families from the USA, Brennan et al. (2012) found aggression at ages 2 to 3 was more consistently negatively correlated with academic performance at age 7 than inattention, hyperactivity-impulsivity or oppositional behaviours. This was in contrast to their hypothesis that only inattention or hyperactivity-impulsivity would be negatively associated with academic performance. Campbell et al. (2006) also found high stable (and moderately stable) trajectories of aggression from toddlerhood to be associated with poorer academic achievement in primary school although this study did not compare physical aggression to other externalising behaviours.

Overall, these studies suggest that high levels of aggression appear to be indicative of a pattern of behaviour that is likely to have disruptive cascading impacts on multiple domains of functioning when compared with other early externalising behaviours (Brennan et al., 2012). According to the cascade model, the negative effects of aggression may progressively spread to other domains of functioning over time (Burt, Obradovic, Long & Masten, 2008; Chen et al., 2010). The cascade effects of aggression are indicated by direct effects on later adjustment and indirect

contributions to long-term outcomes through stability and/or other mediators. In support of the direct effects of aggression on later functioning, longitudinal research has demonstrated that aggression impacts on later social competence and academic achievement over time, but that social competence and academic achievement does not impact on aggression (Chen et al., 2010). Thus, it would appear that physical aggression in children can lead to cascading negative effects on various domains of functioning, and that children with high stable trajectories of aggression have poorer outcomes when compared with children with other high stable externalising behaviours.

1.4 Chronic physical aggression and life course persistent conduct disorder

Children who are identified as having high stable trajectories of aggression may also meet the criteria for life course persistent conduct disorder. There is significant overlap between research that examines the trajectories of aggression and Moffitt's (1993) taxonomy of life course persistent (LCP) and adolescence-limited (AL) conduct disorder. This taxonomy emphasises that conduct disorder can be distinguished on the basis of two distinct subgroups which differ in age of onset and long-term outcomes. The poorest outcomes are found for the LCP group for whom antisocial behaviour emerges before ten years of age and tends to escalate in severity throughout childhood and into adulthood. In contrast, those with AL conduct disorder do not show significant behavioural problems in childhood but antisocial behaviours begin and end during adolescence. AL conduct problems are largely viewed as 'developmentally normal' although recent research has suggested that they may not be as benign as originally conceptualised, and this subgroup of adolescents may also experience poor outcomes (Odgers et al., 2007).

High and stable levels of aggression are a key feature of LCP conduct disorders and research demonstrates that children showing high stable levels of physical aggression are at high risk of conduct disorder. For example, longitudinal research has found that children showing high stable trajectories of physical aggression from age 2 through to 3rd grade of school scored significantly higher on measures of delinquency in 3rd grade when compared to a group on a moderate, slightly declining trajectory (NICHD Early Childcare Research Network, 2004). These researchers concluded that children on the high stable trajectory may be more akin to the stable, early starter described by Moffitt (1993). This conclusion is also supported by research showing the links between high stable physical aggression and violent offending (Broidy et al., 2003; Nagin & Tremblay, 1999; Pingault et al., 2013).

1.5 Definitions and prevalence of physical aggression in early childhood

In research on physical aggression from mid childhood to adolescence, a number of classification systems for sub-types of aggression have been proposed based on their underlying function or motivation. Most notably is the distinction between proactive and reactive aggression (Dodge & Coie, 1987) where reactive aggression occurs in response to real or perceived provocation, frustration or threat whereas proactive aggression is driven by the anticipation of rewards for aggressive behaviour. However, these sub-types are not easily applicable to early childhood where the motivation or function of aggression cannot easily be determined (Alink et al., 2006; Mesman et al., 2008). Before the end of the preschool years, children have not developed the capacity to understand fully the impact of their behaviour on other people, and young children who use aggressive behaviours may not intend to hurt

others (Maccoby, 1980). Thus for these reasons, some researchers have chosen to exclude intent from a definition of physical aggression in early childhood (Alink et al., 2006; Mesman et al., 2008). Alink et al. (2006) defined physical aggression in the toddler and preschool period as behaviour that may cause physical harm to people, animals or objects. Thus, regardless of their function or motivation, physically aggressive behaviours in early childhood can be seen to include behaviours such as hitting, biting, pushing, scratching, kicking, throwing objects, hair pulling, and cruelty to animals.

Measures of physical aggression in the toddler period are lacking. The widely used Child Behaviour Checklist 1.5-5 Aggression Scale (CBCL: Achenbach & Rescorla, 2000) has been criticised since only a few items refer to physically aggressive behaviours (Alink et al., 2006; Nagin & Tremblay, 1999). Out of 19 items, only four assess physical aggression (e.g., fights, hits others) with the remaining items measuring oppositional behaviours (e.g., defiant, disobedient, lacks guilt, temper tantrums, uncooperative). Due to the lack of measures to assess physical aggression in early childhood, Alink et al. (2006) developed the Physical Aggression Scale for Early Childhood (PA-SEC) which includes eleven items to measure the frequency of physical aggression in young children based on parental reports.

Using the PA-SEC, Alink et al. (2006) demonstrated that physical aggression emerges very early in life. By 12 months of age about half of toddlers are reported to use some form of physical aggression and this figure increases to about 80% by 24 months and 36 months of age (Alink et al., 2006). This research clearly demonstrates that physical aggression is both common and developmentally normal for the majority of toddlers. However, as reviewed previously, high rates of physical

aggression in toddlers are stable over time and those on the high stable trajectory are more likely to have poor longer term outcomes such as offending, low academic achievement and a diagnosis of LCP conduct problems. Thus, a high level of physical aggression in the toddler years is likely to be a marker for children who have significant difficulties in regulating emotions and behaviours and who are unlikely to learn to regulate their aggressive impulses by the end of the preschool years (Tremblay et al., 1999, 2004). The focus, therefore, should not be on preventing the onset of aggression, but intervening early for those children who show frequent levels of physical aggression in the early childhood years. Thus, it is important to identify risk factors for frequent externalising and aggressive behaviours in order to design effective early interventions which target these factors.

1.6 Risk factors for externalising and physically aggressive behaviours

Risk factors are events or conditions that are associated with an increased probability of certain outcomes, in this case, the development of externalising and physically aggressive behaviours. According to Burke, Loeber and Birmaher (2002), research on risk factors has tended to aggregated measures of externalising behaviours rather than focusing on specific behaviours. Overall, there are a large number of risk factors that are have been found to be associated with externalising behavioural problems, and risk factors that have been identified in early childhood are similar to those identified for older children. Risk factors are usually grouped into child, family and peer risk factors, although peers have minimal influence in the early childhood years. Child risk factors include male gender, difficult temperament, cognitive deficits, low verbal intelligence, prematurity or birth complications and genetic influences (e.g., Frick, 2004).

In relation to gender differences, there is significant evidence that boys show more externalising behaviour problems and physical aggression than girls (for review see Card, Stucky, Sawalani & Little, 2008 and Martel, 2013). In general, boys are approximately three times more likely than girls to be diagnosed with externalising disorders (Martel, 2013). However, there is some debate about when gender differences in aggressive and externalising behaviour emerge. While some studies have found that gender differences are not yet apparent in the toddler years (e.g., Keenan & Shaw, 1994) not all studies support this finding. For example, Alink et al. (2006) found no gender differences in physical aggression for 1 year olds, but that boys showed significantly higher levels of aggression at ages 2 and 3. However, research has demonstrated that trajectories of high level of stable physical aggression from early to middle childhood are more common in boys than girls (NICHD Early Childcare Research Network, 2004).

In term of genetic influences, there is now significant evidence that externalising problems are at least moderately heritable (Moffitt et al., 2008). For example, Dionne et al. (2003) found substantial hereditability in aggression in 19 month old twins which suggests that there may be a heritable predisposition for children to display physical aggression more or less frequently. van Beijsterveldt et al. (2013) examined the contribution of genetic and environmental factors on stability of aggression from childhood to adolescence in a large twin study in the Netherlands with twins aged 3, 7, 10 and 12. Genetic factors were found to account for 65% of stability in aggression. In addition to genetic influences, a number of other biological factors have been implicated in the development of child externalising behaviours including structural abnormalities, deficits in neurotransmitters, and underarousal of

the autonomic nervous system (for reviews see Burke, Loeber & Birmaher, 2002; Liu, Lewis & Evans, 2013; Moffitt et al., 2008). Notwithstanding the important contribution of genetic and biological factors to child externalising behaviour problems, research has also found that there are many risks in the child's environment that can cause or maintain child externalising behaviours.

Family risk factors include factors pertaining to caregivers or the family environment such as young maternal age, low socio-economic status, poor parenting, antisocial history of mothers and parental mental illness (Keenan & Shaw, 1994; Tremblay et al., 2004; Van Zeijl et al., 2006). Clearly both biological and psychosocial factors contribute to childhood externalising behaviours, and research shows that there tends to be a 'cumulative risk', that is, with exposure to multiple risks there is an increased probability of child externalising problems (Deater-Deckard, Dodge, Bates & Pettit, 1998; Trentacosta et al., 2008). However, in order to develop effective early interventions, it is important to focus on modifiable risk factors, that is, factors that are able to be changed through intervention.

1.7 Dysfunctional parenting as a key modifiable risk factor

Research has demonstrated that dysfunctional parenting is perhaps the most important modifiable risk factor for early childhood externalising behaviour problems (Brenner & Fox, 1998; Pike et al., 2006). While there are a range of parenting attitudes and behaviours that can be classified as 'poor' or 'dysfunctional', parents' use of problematic discipline strategies has consistently been shown to contribute to the development and maintenance of child externalising behaviours. Because dysfunctional parenting impacts directly on child externalising behaviours, it is known as a 'proximal' risk, as opposed to other risk factors that tend to impact

indirectly on child behaviour (such as socio-economic status or maternal age) which are known as 'distal' risks. Our understanding of dysfunctional parenting practices has been significantly informed by Patterson's (1982) coercion theory. According to this theory, which also has significant empirical support, parents escalate their aversive affect and behaviour in response to their child's escalating aversive affect and behaviour. The mechanisms through which coercive parent-child interaction leads to externalising behaviour problems in children include modelling (e.g., a parent becoming angry, yelling and smacking) and reinforcement contingencies (e.g., positive reinforcement though parental attention to child aversive behaviour and negative reinforcement through parents giving in to escalation). Since measurement of coercive interaction between parents and children is not straightforward, research has tended to focus on four key problematic discipline styles that are exhibited in coercive interactions: overreactive, lax and verbose discipline and inconsistent parenting.

The first dysfunctional discipline style is overreactive discipline which involves the tendency to use harsh, coercive and authoritarian strategies such as anger, yelling, criticisms, and use of physical discipline such as smacking (O'Leary, Smith Slep & Reid, 1999). There is significant evidence that overreactive parenting is associated with more frequent externalising behaviours (Deater-Deckard et al., 1998; O'Leary, Smith Slep, & Reid, 1999; Gilliom & Shaw, 2004; Miner & Clarke-Stewart, 2008; Patterson & Sanson, 1999; Smith & Farrington, 2004) as well as aggressive behaviours (Benzies, Keown & Magill-Evans, 2008; Côté et al., 2006; Knutson, DeGarmo & Reid, 2005; McFadyen-Ketchum, Bates, Dodge & Pettit, 1996; Stormshak, Bierman, McMahon & Lengua, 2000). While much of this research is

cross-sectional, there is also increasing longitudinal research to show this association. For example, in a longitudinal study of 975 Canadian children which assessed parenting and child aggression at ages 2, 4 and 6 years, hostile/ineffective parenting was found to have both an immediate and delayed effect on the development of physical aggression (Benzies, Keown & Magill-Evans, 2009). That is, if a mother reported hostile/ineffective parenting at only one time point, that episode had an impact on aggression at the time it occurred and the impact carried forward in time until 6 years of age.

There is also significant research on the associations between physical discipline such as smacking, 'spanking' or corporal punishment and the risk of child externalising behaviours. For example, in a population based sample of 2461 US families, frequent use of spanking when the child was 3 years of age was associated with increased risk for child aggression when the child was 5 years of age (Taylor, Manganello, Lee & Rice, 2010). In addition, a nationally representative longitudinal study in US of more than 10,000 children between the ages of 5 and 8 years found spanking predicted increases in externalising behaviours (Gershoff et al., 2012). Gershoff's (2002) meta-analysis of 88 studies found that corporal punishment was associated with increased levels of child aggression, higher rates of conduct disorders and poorer overall mental health.

Recent twin research has examined whether the gender differences in conduct problems could be accounted for by the use of harsher discipline with boys than girls. Boys have been found to receive harsher discipline than girls, and differences in harsh discipline have been found in different twin studies to account for 10-20% (Lysenko, Barker & Jaffee, 2013) and 45% (Meier, Slutske, Heath &

Martin, 2009) of the gender differences in conduct problems. These findings suggest that gender differences in harsh discipline may *cause* gender differences in externalising behaviours (Lysenko, Barker & Jaffee, 2013).

The second dysfunctional discipline style is lax parenting which is characterised by overly permissive discipline, such as begging or coaxing a child, failing to enforce rules or follow through on requests and even hugging or soothing a child when behaviour problems occur (Del Vecchio & O'Leary, 2008). Research that has involved experimental manipulations of lax discipline has found that positive attention in response to misbehaviours is related to high rates of child misbehaviour (Acker & O'Leary, 1996). Research has also demonstrated that lax parenting is associated with child externalising behaviour and aggression (Gardner, 1989; Snyder & Patterson, 1994).

The third dysfunctional discipline style is verbose parenting which involves responding to child aversive behaviours with significant and excessive instructions, threats or reasoning; a pattern of behaviour that was described by Patterson (1982) as 'nattering'. While some researchers have included verbose parenting in their definition of overreactive or harsh parenting (e.g., Stormshak et al., 2000) other researchers have examined it as a separate construct (e.g., Hakman & Sullivan, 2009; Pfiffner & O'Leary, 1989). Pfiffner & O'Leary (1989) found that delayed, long and gentle reprimands (verbose responses) results in higher levels of misbehaviour than immediately brief and firm reprimands. Hakman and Sullivan (2009) experimentally manipulated rates of verbosity in mothers of toddlers and found that children who received high levels of verbosity exhibited higher levels of noncompliance. While verbosity has not specifically been examined in relation to

aggressive behaviours in children, since minor behaviour such as noncompliance have been shown to precede aggression (Del Vecchio & O'Leary, 2006), it is likely that verbose parenting may escalate child aversive behaviours which lead to aggression.

The final dysfunctional discipline style is inconsistent parenting, which is a complex construct and can involve different types of parenting behaviours including a combination of overreactive, lax and verbose discipline. One type of inconsistent parenting is characterized by providing both positive and negative responses to child problem behaviour. In a novel study, Acker and O'Leary (1996) instructed mothers who were engaged in a telephone conversation, to respond to toddlers' inappropriate demands for attention with either consistent reprimands or with one of a variety of inconsistent strategies. Reprimanding half of the child's demands and providing positive attention to the rest of the demands resulted in high rates of both demands for mothers' attention and children's negative affect. Reprimanding half the children's demands and ignoring the other demands did not have deleterious effects, nor did reprimanding and attending to the same demand half of the time and ignoring the other demands. Thus, this study demonstrated that positive feedback for inappropriate demands is a type of inconsistent discipline that can escalate toddler's externalising behaviours. Another type of inconsistent parenting is displaying alternating high levels of lax and overreactive discipline. Del Vechio and O'Leary (2008) found that mothers of aggressive toddlers displayed more lax and overreactive discipline when addressing misbehaviours that preceded aggression than did mothers of nonaggressive toddlers. The mothers of the aggressive toddlers were

not only lax in their discipline responses preceding aggression but also in their discipline responses following aggression.

While there is some evidence that physical discipline of children may be at its highest during the toddler years (Day, Peterson & McCracken, 1998), there is also evidence that dysfunctional parenting styles are relatively stable over time. Pettit and Bates (1989) found mothers' observed restrictive control when their children were 13 months old correlated strongly (r = 0.72) with observed hostile parenting when the children were 24 months old. O'Leary, Smith Slep and Reid (1999) found that overreactive discipline and externalising behaviours were significant and similarly stable (r = 0.54 and 0.51) across a 2 and a half year period from when the children were 28 months until they were 57 months. Vittrup, Holden and Buck (2006) found significant correlations between discipline practices (r = 0.22 to 0.51) over 4 years, particularly for spanking and yelling. Based on the findings of this research, it would seem that parents' use of dysfunctional discipline strategies is relatively stable over time from early in a child's life, suggesting the importance of intervening early in order to prevent coercive patterns of parent-child interaction from becoming entrenched.

It should be noted that there is also increasing research demonstrating the bi-directionality of parenting and child externalising behaviours (e.g., Pettit & Arsiwalla, 2008; Verhoven et al., 2010). In other words, dysfunctional parenting occurs both as a cause and a consequence of externalising behaviours. However, even if coercive parent-child interactions start with child externalising behaviour, there is significant evidence that dysfunctional discipline is a factor in the development and persistence of child externalising behaviours. In fact, the strongest evidence for the impact of

dysfunctional parenting on child externalising behaviour is found in experimental studies of parenting interventions, which will be reviewed in the next chapter.

1.8 Summary

Externalising behaviour problems emerge early in life, are relatively stable over time and can result in a diagnosis of DBDs, as well as poor outcomes for the individual and significant costs to society. Research on childhood physical aggression, which is a key feature of DBDs, demonstrates that high stable trajectories of aggression commence in the toddler years and are associated with poorer outcomes when compared with other externalising behaviours. These findings suggest that children with frequent physical aggression during the toddler years are most at risk of following a high physical aggression trajectory, leading to LCP conduct problems. Given that physical aggression emerges early in life and is very common in the toddler and preschool years, the focus should not be on preventing the onset of physical aggression, but rather intervening early for those young children who show frequent levels of physical aggression and may therefore be unlikely to learn to regulate their behaviours by the end of the preschool years.

Research on risk factors has identified a multitude of child and family factors that place children at risk of developing externalising behaviours. Research on modifiable risk factors has primarily focussed on dysfunctional parenting which has been found in to be associated with the development of, or escalation in, child externalising behaviours. Thus, research suggests that early interventions should focus on changing these dysfunctional parenting practices. Chapter 2 will summarise the evidence for the efficacy of parenting interventions which aim to reduce dysfunctional parenting practices and child externalising behaviours; it will

also describe the need for effective brief interventions in order to extend the reach and impact of parenting interventions.

CHAPTER 2

PARENTING INTERVENTIONS

2.1 What are parenting interventions?

Parenting interventions that aim to reduce externalising problems in early childhood primarily involve teaching parents to modify their interactions with their children. Behavioural family interventions or behavioural parent training describe interventions based on social learning and cognitive behavioural theories that target the coercive cycles of parent-child interaction and other dysfunctional discipline styles that are associated with the development and maintenance of externalising behaviours in children. These interventions are known by a number of interchangeable terms such as ‘parenting interventions’, ‘parent training’, or ’parenting programs’. The term ‘parenting intervention’ will be used throughout this thesis to refer to interventions based on social learning and cognitive behavioural theories. Parenting interventions provide active skills training or coaching to parents in how to increase positive reinforcement for desirable behaviours, decrease reinforcement of undesirable behaviours and introduce a regime of consistent, non-violent limit setting. Thus, it is via reductions in dysfunctional discipline and increases in positive parent-child interactions, that parenting interventions reduce child externalising behaviours.

Parenting interventions generally use manualised curricula and involve a range of techniques in their delivery such as discussion, roleplays, watching video demonstrations and the provision of homework (Barlow et al., 2010). While

behavioural parenting interventions have the same theoretical basis and techniques, there are many variations in the type and format of interventions described within the research literature. Parenting interventions can be delivered as universal, selected or indicated interventions or as 'treatments' (Mrazek & Haggerty, 1994). Universal parenting interventions target all children in the population, selected interventions target children at risk for externalising problems due to presence of risk factor (e.g., parental mental health problems, economic disadvantage), indicated interventions target children already showing signs or symptoms of problems (e.g., externalising behaviours) and treatments are interventions for children already diagnosed with disorders such as DBDs. Parenting Interventions also vary in their format and can be delivered as individual, group or self-directed interventions, or a combination of these formats.

2.2 Efficacy of parenting interventions for childhood externalising behaviours

Over the last 30 years there has been an explosion in research on the efficacy of parenting interventions, particularly as a targeted intervention for children showing early externalising behaviours and also a treatment for children diagnosed with DBDs such as ODD or CD. *Efficacy* describes the effects of an intervention under optimal, highly controlled conditions such as university settings and can be differentiated from *effectiveness* which describes the effects of an intervention under real-world conditions (Flay et al., 2005). The evidence demonstrating the efficacy of parenting interventions comes from hundreds of randomised controlled trials (RCTs), the results of which have been summarised by several systematic reviews and meta-analysis. The findings of these reviews demonstrate that parenting interventions are efficacious in reducing parent dysfunctional discipline and child externalising

behaviours (Barlow et al., 2010; Dretze et al., 2009; Eyberg, Nelson & Boggs, 2008; Furlong et al., 2012; Lundahl, Risser & Lovejoy, 2006; Maughan et al., 2005; McCart, Priester, Davies & Azen, 2006; Serketich & Dumas, 1996). These reviews have found moderate to large effect sizes for reductions in dysfunctional parenting and child externalising behaviours immediately post-intervention (according to parent report and observed behaviour) but that smaller effects are found for longer term follow-ups (e.g., Lundahl, Risser & Lovejoy, 2006).

Meta-analytic reviews have also found that these interventions not only impact on dysfunctional parenting and child externalising behaviour, but can also improve a range of psychosocial outcomes for parents. A meta-analysis of 48 studies found parenting interventions resulted in immediate post-intervention improvements in maternal depression, anxiety, stress, parenting confidence, and satisfaction with the relationship with partner, even though these outcomes were not specifically targeted in the intervention (Barlow et al., 2012). However, only stress and confidence were statistically significant at six month follow-up, and no outcomes were significant at one year. Similarly, a meta-analysis of 13 studies by Furlong et al. (2012) also found evidence parenting interventions led to significant improvements in parental mental health in the short term.

While there is a significant lack of research on outcomes for fathers from parenting interventions, Barlow et al.'s (2012) review found a short-term improvement in father's stress in the four studies that assessed paternal outcomes. Other meta-analytic reviews have also highlighted that the literature on parenting interventions overwhelmingly focuses on mothers and generally does not report on fathers' participation rates or outcomes (e.g., Fletcher, Freeman & Matthey, 2011;

Lundahl, Tollefson, Risser & Lovejoy, 2008; Tiano & McNeil 2005). Two meta-analyses found that reductions in dysfunctional parenting practices and child externalising behaviour were smaller for fathers than for mothers (Fletcher, Freeman & Matthey, 2011; Nowak & Heinrichs, 2008), which suggests that parenting interventions may be less effective for fathers. The failure to include fathers in parenting interventions and report on their outcomes is a significant gap in the literature, especially given that fathers have a unique influence on child development, independent from that of mothers (Lewis & Lamb, 2003) and research suggests that inclusion of fathers in parenting programs may enhance outcomes for children (Bagner & Eyberg, 2003; Tiano & McNeil, 2005). It is therefore imperative to include fathers as well as mothers in parenting interventions and report on their outcomes.

In attempting to identify the mechanisms through which parenting interventions reduce child externalising and aggressive behaviours, research has examined the *mediators* of parenting interventions. A growing number of studies have conducted mediation analysis in RCTs and have found that changes in parenting practices (rather than parental mental health or parenting competence) mediate changes in child externalising behaviours (Beauchaine, Webster-Stratton & Reid, 2005; Brotman et al., 2009; Fossum et al., 2009; Gardner, Hutchings, Bywater & Whitaker, 2010; Gardner, Burton & Klimes, 2006; Reid, Webster-Stratton & Baydar, 2004). For example, Brotman et al. (2009) found improved parenting practices partially mediated the effects of a parenting intervention on reductions in child physical aggression. Improvements in harsh parenting, responsive parenting and stimulating parenting explained a significant amount of the intervention effect on

child physical aggression observed in the context of parent–child interactions. Thus, this research confirms *how* parenting interventions improve child outcomes: by reducing dysfunctional discipline practices and replacing them with more positive strategies.

2.3 The importance of parenting interventions in early childhood

Research examining the efficacy of parenting interventions has increasingly targeted parents of children in the toddler and preschool period. There are two key reasons for the increasing focus on the early childhood years. First, it is based on the assumption that parenting has its greater impacts on children in the early childhood years because of the developmental plasticity of the brain (Sanders, 2012) so parenting interventions are presumed to be more effective when delivered to parents in the early years. Indeed, there is some research to suggest parenting interventions are less effective for older versus younger children (Gardner et al., 2010; McCart et al., 2006; Ogden & Hagen, 2008; Webster-Stratton & Hammond, 1997). The reduced effectiveness of parenting interventions for older versus younger children may be because patterns of parent-child interaction have become more coercive and consequently child externalising behaviours have become more severe and entrenched and are therefore more resistant to change.

Second, as many parents find the toddler and preschool years challenging, they may be more receptive to parenting interventions at this time. Research suggests that one of the most difficult times for parents is the transition from infancy to toddlerhood (Scaramella & Leve, 2004). Frustration with childrearing increases during the first 3 years of a child's life and is associated with greater use of overreactive discipline styles such as yelling and smacking (Regalado et al., 2004).

In fact, smacking of children appears to peak between ages 2 and 3 years (Day, Peterson & McCracken, 1998) and discipline encounters between parents and toddlers are reported to occur as frequently as every six to nine minutes (Minton, Kagan & Levine, 1971; Power & Chapeiski, 1986). The toddler years are also a critical time for developing cognitive, language, motor and self-regulation skills, and this is the period when externalising behaviour problems first emerge for many children and parent-child interaction patterns are first challenged (Dishion et al., 2008; Scarmella & Leve, 2004). Thus, the transition from infancy to toddlerhood represents an important developmental window for delivery of parenting interventions to reduce dysfunctional discipline and prevent continuity and escalation of early externalising behavioural problems.

A systematic review of the evidence for the efficacy of group-based parenting interventions for improving emotional and behavioural adjustment in the early childhood years (children aged 0 to 3) found only 8 studies that met inclusion criteria (Barlow et al., 2010). While the review found group parenting interventions led to significant effects on children's adjustment (according to both parent reports and independent observations) in the short-term, it concluded that more research was needed, especially to confirm longer-term effects of these early interventions. This review only included group-based parenting interventions, and there are other studies that have examined the efficacy of individual parenting programs for externalising behaviour problems in the toddler and preschool years (e.g., Sanders, Markie-Dadds, Tully & Bor, 1998; Tucker et al., 1998). Overall, however, there is a lack of research targeting the toddler years, which appears to be a critical developmental window for the delivery of parenting interventions.

2.4 Parenting interventions targeting childhood aggression

The majority of studies that have examined the efficacy of parenting interventions both in the early childhood years and also in later childhood have focused on externalising behaviours broadly, and only a few have specifically focused on reducing physical aggression (Tremblay, 2006). As outlined in Chapter 1, frequent physical aggression in early childhood is stable over time, and is a more important predictor of later violence when compared to other externalising behaviours. Research on parenting interventions for reducing physical aggression has largely targeted parents of school aged children (see McCart et al., 2006 for review) and there is a significant lack of research on early childhood. However, there are some notable exceptions. Brotman et al. (2008), for example, examined the efficacy of a parenting intervention for preschoolers who were at risk for aggressive behaviour on the basis of having a teenage sibling who attended court for antisocial behaviour. By the end of the study, when the children were 6 years old, the intervention group displayed 5 times fewer aggressive acts during a parent-child interaction task when compared with a control group. This research demonstrates that it is possible to intervene in early childhood and prevent the escalation of aggressive behaviour. However, as noted by Tremblay (2006), most of our knowledge on physical aggression comes from arrests and convictions of adolescents and adults, and we need to 'start at the beginning' (p. 481) by targeting toddlers who appear to be already on a chronic trajectory of physical aggression.

2.5 Triple P – Positive Parenting Program

Within the large body of research over the past three decades examining the efficacy of parenting interventions, there are a number of specific programs that have

a developed a significant evidence base. These programs include Incredible Years (Webster-Stratton & Reid, 2003), Parent Child Interaction Therapy (PCIT: Eyberg, Boggs & Algina, 1995), Parent Management Training Oregon Model (MPTO: Patterson, Reid & Eddy, 2002) and Triple P – Positive Parenting Program (Sanders, 1999). Of these programs, Triple P has been the focus of significant research with over 140 outcome studies (Sanders, 2012), and it has been listed as an evidence-based intervention by the World Health Organisation (2009) Task Force for global violence reduction and the United Nations' Task Force on Family Based Treatment for Prevention of Substance Abuse (United Nations Office Drugs & Crime, 2009).

Triple P is a multi-level parenting and family support strategy developed by Matthew Sanders and colleagues from the University of Queensland in Australia. It aims to prevent severe behavioural, emotional and developmental problems in children by enhancing the knowledge, skills and confidence of parents (Sanders, Markie-Dadds & Turner, 2003). What sets Triple P apart from other evidence-based parenting programs is that it has five levels of intervention on a tiered continuum of increasing strength, as well as different variants targeting different clinical problems, age groups and populations. The rationale for this flexible multi-level model is that children have differing levels of externalising problems and parents have differing needs and preferences regarding the type, intensity, mode of intervention they require. Level 1 (Universal Triple P) is a universal parent information strategy which provides all parents with access to parenting information via the use of print and electronic media as well as tipsheets, videotapes and website information. Level 2 (Selected Triple P) is either a brief parenting seminar with large groups of parents or a series of brief and flexible consultations with individual parents which aim to

provide early anticipatory guidance to parents of children with mild behavioural problems or developmental issues. Level 3 (Primary Care Triple P) targets children with mild to moderate behavioural difficulties and includes active skills training in addition to information and advice for parents. Level 4 (Standard Triple P) is an intensive 8 to 10 session individual, group or self-directed parenting intervention for families with children with more severe externalising problems. Level 5 (Enhanced Triple P) is an enhanced intervention where child behaviour problems persist or where parenting difficulties are complicated by other sources of family distress such as marital conflict or parental mental health problems.

Triple P uses a self-regulatory framework where parents are taught skills to enable them to become independent problem solvers. Such skills include monitoring a child's or a parent's own behaviour, choosing an appropriate strategy for the problem behaviour; self-monitoring their implementation of strategies; and identifying strengths or limitations in their performance (Sanders, Markie-Dadds & Turner, 2003). There are five core principals which form the basis of the Triple P Program: ensuring a safe and engaging environment, creating a positive learning environment; using assertive discipline; having realistic expectations; and taking care of oneself as a parent.

Research on the intervention that became Triple P began in the 1980s and it has evolved over 30 years into a comprehensive public health model of intervention. To date there has been five meta-analyses conducted on Triple P research and four of these have concluded that it is effective in changing dysfunctional parenting and in improving children's behaviour and adjustment in the short- and longer-term (de Graaf, 2008a; de Graaf, 2008b; Nowak & Heinrichs, 2008; Thomas & Zimmer-

Gembeck, 2007). These reviews have found that Triple P has moderate to large effect sizes immediately post-intervention and up to three years follow-up in child externalising behaviours and dysfunctional parenting and that there are also significant improvements in measures of parental well-being, parenting competence and satisfaction with the partner relationship. In addition to research demonstrating the efficacy of Triple P, there is also research to support its effectiveness under real world conditions (Gallart & Matthey, 2005), its dissemination as a whole of population approach (Prinz et al., 2009) and its economic value (Foster, Prinz, Sanders & Shapiro, 2008; Mihalopoulos et al., 2007). Based on the significant evidence supporting the program, and its flexible multi-level model of delivery, it has been adopted widely in 18 countries around the world (Sanders, 2012).

Not all research on Triple P is without criticism however. A recent meta-analysis by Wilson et al. (2012) also found moderate to large effect sizes (d = 0.60) for maternal ratings of child behavioural problems, but the authors also highlighted concerns about risk of bias and poor reporting, which they claimed undermined the strength of the research findings on Triple P. However, Sanders et al. (2012) identified a number of conceptual and methodological inadequacies of Wilson's meta-analysis, such as the inappropriate pooling of differing levels of intervention, which dispute some of the concerns raised. According to Wilson et al. (2012), however, one key concern relates to the predominance of publications by Triple P-affiliated personnel, which is a conflict of interest that may lead to bias in the research. Out of 26 studies included in the review, Wilson et al. (2012) identified only one independent trial of Triple P and this trial found no positive effects (Malti, Ribeaud & Eisner, 2011). Thus, despite the large evidence base supporting Triple P,

there appears to be a need for further high quality studies that are independent of the developer.

2.6 Lengthy duration is a key limitation of parenting interventions

A key limitation of typical parenting interventions, including many formats of Triple P, is that they are lengthy, consisting of about 8 to 12 sessions (Bradley et al., 2003; Lavigne et al., 2008) and up to as many as 24 sessions in other parenting interventions such as the Incredible Years (Webster-Stratton & Reid, 2003). While lengthy parenting interventions are efficacious, due to the demands associated with attendance by parents and delivery by health professionals, it is unlikely that they will reach large numbers of parents and impact on the prevalence of child externalising behaviours.

Lengthy parenting interventions may lead to low participation rates by parents as well as high drop out (attrition) rates which are likely to limit their reach and impact. In relation to low participation rates, research has found that very few parents participate in evidence-based parenting interventions. For example, a population survey in South Carolina found only 14% of parents of children aged birth to 7 years reported participation in a parenting program (Prinz & Sanders, 2007). Similarly, in Australia, Sanders et al. (1999) found that only about 10% of parents reported participation in an evidence-based parenting program. While these studies did not examine participation rates for parents of children with externalising behaviour problems, other research suggests that less than 20% of parents with children showing externalising behaviour problems seek assistance or are referred for treatment (Horwitz et al., 1992; Pavuluri, Luk & McGee, 1996; Lavigne et al., 1998).

There are also high attrition rates from standard parenting interventions, with Assemeny & McIntosh (2002) indicating that between 8 to 48% of families drop out before completion. In terms of child and youth mental health services, attrition rates are as high as 40-60% (Kazdin, Holland & Crowley, 1997). While there are likely to be several reasons for low participation rates and high attrition rates, the demands of participation for families, either real or perceived, are likely to be a significant barrier for many families. In relation to the *real* demands for families, practical challenges such as organising childcare, transport and competing family priorities are likely be significant barriers to attending lengthy interventions (Kazdin & Wassell, 1999). In relation to the *perceived* demands of an intervention, research has shown that parents' perceptions that an intervention was demanding was associated with reductions in levels of change in child externalising behaviours (Kazdin & Wassell, 1999). While the mechanisms through which perceived demands of the intervention reduce therapeutic change have not been examined, it may be that negative cognitions about the intervention prevent parents from engaging fully in the intervention, thereby reducing efficacy.

A related issue is that of parent preferences for briefer parenting interventions. A consumer preference survey of 162 parents of children aged 3 to 6 years by Metzler et al. (2012) demonstrated that lengthy parenting interventions such as multi-week parenting groups and home visits are the formats that are *least* preferred by parents yet these are the formats with the most significant evidence base. Since parents prefer briefer interventions, it is understandable that they may be reluctant to engage in lengthy parenting interventions and more likely to drop out early. Lengthy parenting interventions also violate the principal of 'minimal sufficiency' which states

that it is important to provide only the minimal level of therapeutic support and time commitment that a family needs in order to change (Prinz & Sanders, 2007). It is reasonable to assume that a significant proportion of families, especially those with young children whose coercive patterns of interaction may be less entrenched, would be able to modify their dysfunctional parenting in less than 12 sessions.

Lengthy interventions are also resource-intensive, costly and require significant clinician time through training and supervision (O'Brien & Daley, 2011). According to the RE-AIM framework, the impact of the intervention is a function of five factors: Reach, Efficacy, Adoption, Implementation and Maintenance (Glasgow, Vogt & Boles, 1999). This means that as well as reach and efficacy, interventions need to be adopted, implemented and maintained over time by a variety of health care professionals in a range of settings. Primary care practitioners such as child health nurses and general practitioners are often best placed to deliver parenting interventions to families with young children with externalising problems, as they are the professionals most frequently consulted (Sawyer et al., 2001). However, the length of typical parenting interventions, as well as the training and supervision requirements, is often a significant barrier for implementation.

Thus, there are a number of reasons why the typical duration of parenting interventions may limit the reach and impact of parenting interventions. These include the demands of the intervention for families (either real or perceived) which may reduce participation, increase attriton, and reduce effectiveness, as well as the burden on practitioners to adopt, implement and maintain lengthy interventions in their practice. Lengthy parenting interventions are least preferred by parents and these formats may also violate the principal of minimal sufficiency. In addition, there

is also evidence from research on parenting interventions to suggest that more is not necessarily better in terms of outcomes from parenting interventions for families and children.

2.7 Why 'more is not better' and the need for brief parenting interventions

There is accumulating evidence from differing types of research studies, that 'more is not necessarily better' in parenting interventions. In order words, parenting interventions that have more sessions (longer duration) and/or longer sessions (greater intensity) and a broader focus may not be more effective than shorter interventions with a narrower focus (Bakermans-Kranenberg, van IJzendoorn & Juffer, 2003). Findings to support the hypothesis that more is not necessarily better emerge from two types of research studies: (1) research on dose-response in parenting interventions and (2) meta-analyses that examine the effects of the duration of parenting interventions. Firstly, research on dose-response in parenting interventions and child psychotherapy has tended to show that dose (usually defined by the number of sessions received) is not associated with response (improved outcomes for children and/or families), although not all research supports this conclusion (e.g., Tucker et al., 1998). The lack of association between dose and response has been demonstrated in several studies using both correlational and experimental designs (Andrade, Lambert & Bickman, 2000; Carrasco & Fox, 2012; Casey & Berman, 1985; Salzer, Bickman & Lambert, 1999; Scott, 2005). For example, an experimental study examined whether increasing the intensity of a parenting intervention would improve outcomes for children with externalising problems who were living in poverty (Carrasco & Fox, 2012). Families were randomly assigned to standard weekly sessions over 8 weeks or an intensity

condition that provided 50% more treatment. Contrary to hypotheses, no significant differences were found in outcomes between the standard and intensity groups at post or follow-up. However, the briefer intervention was already of standard duration so may have been sufficient to bring about change for most families.

Secondly, the findings of four meta-analyses also conclude that more is not necessarily better in terms of outcomes for families and children. Two meta-analyses of parent training interventions found no significant association between time in intervention/number of sessions and child or family outcomes (Lundahl, Risser & Lovejoy, 2006; Serketich & Dumas, 1996). A third meta-analysis of 70 studies for enhancing sensitive parenting (which included both behavioural and non-behavioural parenting interventions) found interventions with fewer than 5 sessions were as effective as interventions with 5 to 16 sessions, but interventions with more than 16 sessions were *less* effective than interventions with a smaller number of sessions (Bakermans-Kranenberg, van IJzendoorn & Juffer, 2003). A fourth meta-analytic review examined the components associated with parent training effectiveness and found that programs that provided adjunctive components along with parenting skills training (e.g., communication skills training, coping skills training) led to smaller effects in terms of changes in child externalising problems than programs that focussed on parenting skills alone (Kaminski et al., 2008). The researchers hypothesised that programs with additional components may distract parents from the goal of modifying their parenting practices. Indeed, it is also possible that longer interventions (regardless of their focus) may simply overwhelm and overburden parents, leading to reduced effectiveness of the intervention.

It is important to highlight the limitations to meta-analysis for answering questions about effectiveness of brief interventions relative to longer interventions. It may be that the brief interventions are systematically different to longer interventions, as is the case with the brief interventions in the Bakermans-Kranenberg, van IJzendoorn and Juffer (2003) meta-analysis where briefer interventions were based on social learning theory and longer interventions were based on psychoanalytic theory. In addition, meta-analyses do not demonstrate the causal effects of dosage, only an association, so there is a clear need for experimental studies which randomise families to interventions of differing duration in order to determine the effectiveness of brief interventions. Overall, however, the research conducted to date suggests that more may not necessarily be better for children and families when it comes to outcomes from parenting interventions, and that in some instances it may even reduce the efficacy of interventions. The findings of this research point to the possibility that brief interventions may be effective, at least for some families.

There is growing recognition that in order to radically extend the reach of parenting interventions and impact on the prevalence of child externalising problems, a range of flexible ‘low intensity’ or ‘light touch’ interventions are required (Sanders & Kirby, 2010). Low intensity interventions include brief individual or group interventions as well as self-directed interventions, where parents work through the materials on their own with minimal or no therapist assistance. These can be offered as the first step as part of a stepped-care approach, with more intensive interventions offered to those who require more support (Haaga, 2000). However, in order for stepped care approaches to be effective, brief interventions have to produce equivalent outcomes to more intensive interventions for at least a proportion

of participants (Bower & Gilbody, 2005). A stepped care approach has the potential for significant population level impacts on externalising behavioural problems and to steer children away from a life-course trajectory of externalising behaviour disorders. There is already significant research on self-directed parenting programs, and two systematic reviews have concluded that they are efficacious compared with no intervention and result in similar outcomes compared with therapist led interventions (O'Brien & Daley 2011; Montgomery, Bjornstad & Dennis 2006).

Within a suite of 'low intensity' parenting interventions, brief individual or group interventions are required for families who would prefer therapist support over a self-directed program. Brief individual or group parenting interventions would also enable delivery by primary care practitioners. Brief interventions often aim to condense the key components of effective parenting programs into a shorter program length. While there is no accepted definition of what a 'brief' parenting intervention constitutes, since many regarded as 'standard' are between 8 and 12 sessions (Bradley et al., 2003; Lavigne et al., 2008), 'brief' could be defined as any intervention less than 8 sessions in duration. Supporting this definition, research on brief psychological interventions for adult mental health disorders such as depression has also tended to define brief interventions as less than 8 sessions in duration (e.g., Nieuwsma et al., 2011).

In publicly funded child and adolescent mental health services, there already appears to be a trend towards implementing brief interventions in order to cope with the excessive demand for services (Perkins, 2006). While the efficacy of 'moderately intensive' parenting programs of 8 to 12 sessions has already been established (Lavigne et al., 2008), it is now a priority to determine whether brief

parenting interventions of less than 8 sessions in duration are also effective in reducing dysfunctional parenting practices and child externalising behaviour problems. According to Kazdin (2008, p 207): “Even if brief interventions are only effective with a small proportion of individuals, their ease of dissemination and relatively low cost make them worthwhile alternative as a point of departure before a more costly, more time consuming, and more difficult to deliver treatments”. The next chapter will report on a systematic review of the effects of brief parenting interventions in order to address this question.

2.8 Summary

This chapter described the research supporting the efficacy of parenting interventions based on social learning and cognitive behavioural theories for reducing dysfunctional parenting and child externalising behaviours. According to the findings of several meta-analyses, parenting interventions show moderate to large effect sizes for reducing child externalising behaviour and dysfunctional parenting and may also impact on aspects of parent functioning that are not directly targeted in the intervention. Interventions increasingly target the early childhood period since parenting is more challenging in this period and there is evidence that parenting interventions are more effective with younger than older children. Interventions tend to focus on externalising behaviour problems broadly, and very few studies have specifically focussed on toddler aggression, which is a more important risk factor for poor outcomes when compared with other externalising behaviours. Within the literature, there are several parenting interventions that are evidence-based and Triple P, which involves a multi-level model of parenting and family support, has a robust evidence base. Several meta-analytic reviews support the efficacy of Triple P

in reducing dysfunctional parenting and child behavioural problems in the short and longer term.

One significant limitation of evidence-based parenting interventions including Triple P is that they are lengthy, which may burden families and lead to low participation rates and high attrition rates. Lengthy interventions are also difficult for health practitioners to adopt, implement and maintain over time. For these reasons, low intensity parenting interventions, such as brief interventions are needed. Research on dose-response in parenting interventions and the findings of meta-analytic reviews have concluded that longer programs may not necessarily lead to better outcomes for families, and in some cases may lead to poorer outcomes. These findings suggest that brief parenting interventions may be effective, at least for some families. Effective brief interventions could be delivered as part of a stepped care model of delivery which has the potential to increase the reach and impact of parenting interventions and steer children away for a trajectory of persistent externalising problems. The next chapter presents a systematic review of brief parenting interventions to address the question of whether brief interventions are efficacious in reducing dysfunctional discipline and child externalising behaviours.

CHAPTER 3

A SYSTEMATIC REVIEW OF BRIEF PARENTING INTERVENTIONS

3.1 Background

Dysfunctional parenting is one of the most important modifiable risk factors for child externalising behaviours. As reviewed in Chapter 2 there is significant evidence from the past 30 years that parenting interventions based on social learning and cognitive-behaviour theory are effective in changing dysfunctional parenting and in improving children's externalising problems in the short- and longer-term. However, there are low participation rates (Heinrichs, Bertram, Kuschel & Hahlweg, 2005) and high attrition rates (40 to 60%, Kazdin, 1996) which limit the reach and impact of parenting interventions. Low uptake rates and high attrition rates may be due to the demands of participation in typical individual or group parenting interventions, which are usually 8 to 12 sessions in duration (Bradley et al., 2003; Lavigne et al., 2008), but can be as many as 24 sessions.

Lengthy parenting interventions are not only challenging for parents to attend in terms of organising childcare, transport and competing family priorities (Kazdin & Wassell, 1999), but they are also resource-intensive, costly and require significant clinician time through training and supervision (O'Brien & Daley, 2011). According to the RE-AIM framework, the impact of the intervention is a function of five factors: Reach, Efficacy, Adoption, Implementation and Maintenance (Glasgow, Vogt & Boles, 1999). This means that as well as reach and efficacy, interventions need to be adopted, implemented and maintained over time by a variety of health care

professionals in a range of settings. Primary care practitioners such as child health nurses and general practitioners are often best placed to provide interventions to families with young children with externalising behaviour problems since they come into regular contact with families in the early years, but the length of typical parenting interventions, as well as the training and supervision requirements, is a significant barrier for implementation.

There is growing recognition that in order to radically extend the reach of parenting interventions and impact on the prevalence of child externalising problems, a range of flexible 'low intensity' or 'light touch' interventions are required (Sanders & Kirby, 2010). Low intensity interventions include brief individual or group interventions as well as self-directed interventions, where parents work through the materials on their own with minimal or no therapist assistance. These can be offered as the first step as part of a stepped-care approach, with more intensive interventions offered to families who require more support (Haaga, 2000). However, in order for stepped care approaches to be effective, brief interventions have to produce equivalent outcomes to more intensive interventions for at least proportion of participants (Bower & Gilbody, 2005). There is increasing research on self-directed parenting programs which suggests that they are efficacious compared with no intervention and result in similar outcomes compared with therapist-led interventions (O'Brien & Daley, 2011; Montgomery, Bjornstad & Dennis, 2006). Within a suite of 'low intensity' parenting interventions, brief individual or group interventions are also required for families who would prefer therapist support over a self-directed program, and also to enable delivery by primary care practitioners.

Brief interventions aim to condense the key components of effective parenting programs in to a shorter program length. While there is no accepted definition of what a 'brief' parenting intervention constitutes, since many parenting programs are between 8 and 12 sessions (Bradley et al., 2003; Lavigne et al., 2008), 'brief' can be defined as any intervention less than 8 sessions in duration. Supporting this definition, research on psychological interventions for adult mental health disorders such as depression has also defined brief interventions as less than 8 sessions in duration (e.g., Nieuwsma et al., 2011). Within publicly funded child and adolescent mental health services there already appears to be a trend towards implementing brief interventions in order to cope with the excessive demand for services (Perkins, 2006). While the efficacy of 'moderately intensive' parenting programs of 8 to 12 sessions has already been established (Lavigne et al., 2008), it is now a priority to examine the effects of brief parenting interventions for reducing child externalising behaviour problems and in improving parent and family functioning.

The aim of this systematic review is to assess the evidence for the efficacy and effectiveness of brief (less than 8 sessions) individual or group parenting interventions for reducing child externalising behaviour problems.

3.2 Method

3.2.1 Inclusion criteria

Participants will be caregivers of children aged 2 to 8 years who have either been diagnosed with Oppositional Defiant Disorder; have elevated externalising behaviours; who are at risk of having elevated externalising behaviours as a consequence of presence of a family risk factor (e.g., parental depression); or

caregivers who are concerned about their child's behaviour. Thus, studies that use selected and targeted interventions for child externalising behaviours will be included, but universal interventions that target an entire population with the aim of preventing problems will not be included. Studies that target children with ADHD, medical health problems, and developmental delays or disabilities will not be included. Studies including children younger than 2 or older than 8 years will be included in the review if the mean child age falls within the 2 to 8 year age range.

The review will include randomised controlled trials (RCTs) that compare brief interventions with a control or comparison group such as a waitlist control group, no interventions or treatment as usual. The articles need to be published in English between 1992 and September 2013.

Parenting interventions of less than 8 sessions, delivered in individual, group or telephone-assisted format will be included. The sessions must be provided on a regular basis (e.g., weekly) and be one or two hours in duration. Parenting interventions should predominantly be based on social learning theories (rather than other theories, such as attachment theory) and focus on modifying parenting skills in order to reduce child externalising behaviours. Studies that report on interventions with self-directed sessions will be excluded (since there are already systematic reviews on self-directed parenting interventions) as will studies that examine multi-component interventions that include parenting interventions as only one component of the intervention (since the focus of interest is specifically on parenting interventions).

3.2.2 Outcomes

The primary outcome for this review was measures of child externalising behaviours. Secondary outcomes include: (1) parenting skills, practices or discipline style, (2) parental self-efficacy, competence or confidence, (3) parental mental health and (4) satisfaction with the parental relationship. Previous research on parenting interventions (reviewed in Chapter 2) has demonstrated positive effects for child behaviour and parenting as well as psychosocial functioning of parents, so it is important to include these outcomes in order to examine the effects of brief parenting interventions on a range of outcomes.

3.2.3 Search Strategy

Keyword searches of the following electronic databases were undertaken: PsychINFO, Medline, Sociological Abstracts and Web of Science. There were two groups of search terms. The first group related to the intervention and included the terms: parent intervention, parent training, parenting program, behavioural family therapy, parent support and positive parenting. The second group of search terms related to child behaviour and included the terms: behaviour problems, disruptive behaviour, externalising behaviour, conduct disorder, oppositional defiant disorder, aggression and child mental health.

3.2.4 Study selection

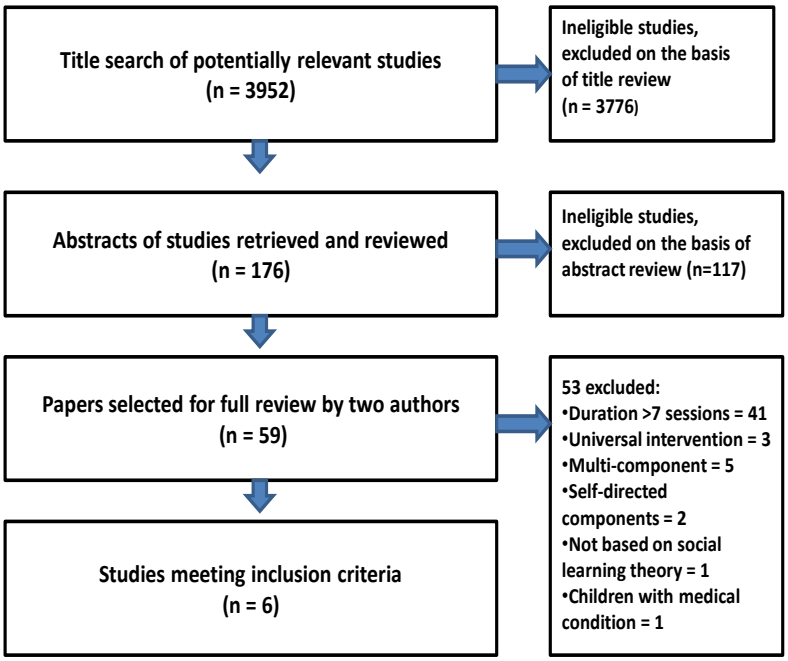
The initial literature search yielded 3952 articles. Article titles were screened for eligibility by the author with a second reviewer who screened a random sample of 622 titles (16%) with agreement of 96%. Where agreement was not reached, the abstract for the article was screened by both reviewers. From the title search, 176

articles were selected for an abstract review by the first author with the second author reviewing a random sample of 88 abstracts (50%) with agreement of 91%. Again, where agreement was not reached, the full article was reviewed by both reviewers. As many abstracts did not include information about the duration of the intervention, this necessitated a review of the full article to determine eligibility. In total, 59 articles were selected for full review by both reviewers independently with six meeting inclusion criteria. These six papers described the results from 5 studies. Figure 1 shows a flow chart of article selection, including reasons for exclusion.

3.2.5 Data extraction, coding and quality assessment

For the six articles describing five studies, information was independently abstracted by both reviewers on study sample, recruitment and inclusion criteria; intervention; design of study and retention rate; timing of measurement; targeted outcomes and measures; and results including statistical significance, effect size and clinical significance. The articles were also independently reviewed for quality using a modified version of the Quality Index (Downs & Black, 1998), which is a valid and reliable tool for measuring methodological quality. The original 27-item Quality Index was modified to exclude 4 items that were not relevant, including 2 items about blinding, 1 about allocation concealment, and 1 about adverse events. These items were excluded as they are not relevant to studies of parenting interventions since it is not possible to conceal allocation from participants or blind them to condition and adverse events are never reported in these studies. The remaining 23 items

Figure 1. Flowchart of included and excluded studies in the systematic review and reasons for exclusion



assessed reporting of the study (9 items), external validity (3 items), internal validity (10 items) and power (1 item). Each checklist item was scored 0 (no/unable to determine) or 1 (yes) with a maximum possible score of 23. The two reviewers resolved disagreements regarding quality assessment through discussion.

Table 1 summarises the abstracted information from the six articles and the Quality Index Score. Where statistical analyses were conducted with MANOVAs, the results in Table 1 include only the findings of the ANOVAs where MANOVAs were significant. Due to the small number of papers identified and significant variations in

intervention, child age, settings and outcomes, a formal meta-analysis could not be conducted.

3.3 Results

3.3.1 Participant characteristics

All five studies recruited parents of children who had concerns or were seeking help about their child's behaviour. The focus was on parents of children in the pre-school age range, with the exception of Kjøbli and Ogden (2012) who recruited parents of 3 to 12 year olds. Joachim, Sanders and Turner (2010) recruited parents who were concerned about problems on shopping trips while Morawska et al. (2011) recruited parents who were concerned about child disobedience and Bradley et al. (2003) recruited parents having trouble managing their child's behaviour. These three studies recruited families via community advertising whereas Kjøbli and Ogden (2012) and Turner and Sanders (2006) recruited parents of children seeking help from a primary care agency.

3.3.2 Types of Interventions

Of the five studies, three used the Triple P system of intervention in Australia (Sanders, 1999). Two of these studies examined the efficacy of a two-hour Triple P Discussion Group: Morawska, Haslam, Milne and Sanders (2011) examined the group program plus two telephone sessions while Joachim, Sanders and Turner (2010) examined the group program only (no telephone sessions). The third study to examine Triple P was an effectiveness study in which child health nurses delivered the Primary Care Triple P with three to four (30 minute) individual sessions (Turner & Sanders, 2006). Kjøbli and Odgen (2012) examined a brief version of PMTO lasting 3-5 sessions in an effectiveness study in Norway where the intervention was

Table 1. *Summary table of the design and results of the six articles describing five studies on brief parenting interventions included in the systematic review*

Authors/ Country	Study Sample, recruitment & inclusion criteria	Intervention – name, format and duration	Design of study (n) & retention rate	Timing of measures	Targeted outcomes and measures	Results including statistical significance (and effect sizes)	Clinical significance & Reliable Change	Quality Index Score
Bradley *et al.* (2003) Canada	Parents of 3-4 year olds having trouble managing their child's behaviour (not assessed in a standardised way). Families recruited through community advertising.	Brief behaviourally oriented psycho-educational parenting intervention. Four group sessions (7-8 parents per group), two hours per session. First three sessions delivered weekly. Final booster session delivered four weeks after session 3. Delivered in community agencies by trained community staff facilitators.	RCT effectiveness study. Cluster randomisation in blocks of six or ten. 198 families randomised to intervention (n = 89) or three-month waitlist control group (n = 109). 87.8% retention at post (82.1% in intervention group).	Pre-post, 1 year month FU. Only a high risk sub-sample of intervention group (n = 25) assessed at 1 year FU.	*Child behavior* PBQ Total, Hyper/ Distractible, Hostile/ Aggressive scales *Parenting* PS Total, Laxness, Overreactivity & Verbosity Scales. *Parental mental health* BSI Hostility & Depression Scales Only one parent completed measures (% mothers vs fathers not specified)	*Child behaviour* Intervention < WL on PBQ Total * (0.40)[1] and Hyper/Distractible ** (0.41) [1] at post. PBQ hostile aggressive NS. Improvements maintained at follow-up for sub-sample of the intervention group. *Parenting* Intervention group < WL on PS Total*** (0.89) [1], laxness** (0.51) [1], overreactivity *** (0.57) [1] and verbosity *** (1.10) [1]. Improvements maintained at FU. *Parental mental health* Intervention group < WL on BSI hostility** (0.44) [1] with improvements maintained at FU. ITT analysis not reported	*CSC* Calculated on PS total at post. In intervention group 26% in clinical range at post vs 56% in waitlist. It was not reported if these differences were statistically significant.	16
Joachim, Sanders & Turner (2010)	Parents of a child aged 2-6 years reporting behaviour problems on	Triple P – Positive Parenting Program: Parent Discussion group focussing on	RCT efficacy study. 46 Families randomised to intervention (n	Pre-post, 6 month FU. Only intervention group	*Child behaviour* ECBI Intensity and Problem Score *Parenting* PS Total Score	*Child behaviour* Intervention < WL on ECBI Intensity* (0.75) and Problem Score** (0.92) at post. Improvements maintained at 6	*CSC* Intervention > WL in % of children in non-clinical range on	17

Authors/ Country	Study Sample, recruitment & inclusion criteria	Intervention – name, format and duration	Design of study (n) & retention rate	Timing of measures	Targeted outcomes and measures	Results including statistical significance (and effect sizes)	Clinical significance & Reliable Change	Quality Index Score
Australia	shopping trips (child behaviour not assessed in a standardised way). Parents recruited through community advertising.	managing child disruptive behaviour on shopping trips. Two hour group program (average of 10 parents per group).	= 26) or four-week waitlist control group (n = 20). 87% retention at post (84.6% in intervention group). 92% retention at follow-up for intervention group.	assessed at 6 month FU.	*Parent conflict* PPC – Problem Scale and Extent Scale *Parenting self-efficacy* PTC – Behaviour & Setting Self-Efficacy Scales *Parental mental health* DASS-21 Depression, Anxiety and Stress Scales Only one parent completed measures (96% mothers).	month FU for ECBI Intensity (0.70) and Problem Score (1.05). *Parenting* Intervention group < WL on PS Total** (0.72). Improvements were not maintained at FU. *Parent conflict* Group differences NS. *Parenting self-efficacy* Intervention group > WL on PTC behaviour *** (1.07) and setting self-efficacy*** (1.26). Improvements maintained at FU. *Parental mental health* Group differences NS. *ITT analysis* All effects remained significant.	ECBI Intensity* not Problem Score. Intervention < WL in % of parents in clinical range on PS Total**, PTC behaviour* and PTC setting*. *RCI* Intervention > WL reliable change on ECBI problem** and PTC behaviour * but not ECBI Intensity, PS Total or PTC setting.	
Kjøbli & Ogden (2012) Kjøbli and Bjørnbeck	Parents of children aged 3 to 12 years (M = 7.28) seeking help from primary care agency for child	Brief Parent Training (builds on PMTO). Individual programs. Lasts 3-5 sessions (M = 5.4 h)	RCT effectiveness study. 216 families randomised to intervention (n = 108) or	Pre-post test design. 6 month FU. Both intervention and comparison	*Child behaviour* Parent report: ECBI Intensity and Problem Scale. Teacher report: SSBS	*Child behaviour* Intervention < comparison on ECBI Intensity** at post and FU (0.43 & 0.33) and Problem Scale* (0.35 & 0.32), HCSBS externalising scale* (0.37 & 0.27). Teacher reports of child	Not reported	13

Authors/ Country	Study Sample, recruitment & inclusion criteria	Intervention – name, format and duration	Design of study (n) & retention rate	Timing of measures	Targeted outcomes and measures	Results including statistical significance (and effect sizes)	Clinical significance & Reliable Change	Quality Index Score
(2013) Norway	conduct problems. 55.6% at or 90th percentile on Eyberg Child Behaviour Inventory (ECBI) – Intensity Scale		comparison group (n=108). Comparison received 'regular services' delivered by practitioners from local community organisations. 86.6% retention at post (88% in intervention group) and 80% retention at follow-up.	assessed at FU.	& TRF *Parenting* Parent report of parenting practices: PPI Positive Parenting, Harsh for age, Harsh discipline, Inconsistent discipline, Appropriate discipline, Clear expectations *Parental mental health* SCL-5 – maternal distress Only one parent completed measures	behaviour NS at post and FU. *Parenting* Intervention > comparison on Positive Parenting*** at post and follow-up (0.65 & 0.53). Intervention < comparison on Harsh discipline* at post and FU (0.58 & 0.34) and at post but not FU for Harsh for age* (0.32) and Inconsistent discipline (0.30)* Appropriate discipline or clear expectations NS at post and FU. *Parental mental health* No significant group differences at post. Follow-up approached significance (0.26) All analyses were ITT. All effects significant when re-run with complete cases.		
Morawska et al. (2011) Australia	Parents of 2-5 year olds who were concerned about child disobedience (not assessed in a standardised way). Parents recruited	Triple P – Positive Parenting Program: Parent Discussion group focussing on managing child disobedience. Two hour group program (average	RCT efficacy study. 67 Families randomised to intervention (n = 33) or waitlist control group (n = 34).	Pre-post, six-month FU. Only intervention group assessed at six-month FU.	*Child behaviour* ECBI Intensity and Problem Scale *Parenting* PS Total, Laxness, Overreactivity & Verbosity Scales.	*Child behaviour* Intervention < WL on ECBI Intensity (1.17)** & Problem Score** (1.07) at post. Improvements for intervention group maintained at FU. *Parenting* Intervention group <WL on	*RCI* Intervention > WL on reliable change at post on ECBI Intensity* and Problem Score* and PS Overreactivity*	16

Authors/ Country	Study Sample, recruitment & inclusion criteria	Intervention – name, format and duration	Design of study (n) & retention rate	Timing of measures	Targeted outcomes and measures	Results including statistical significance (and effect sizes)	Clinical significance & Reliable Change	Quality Index Score
	through community advertising.	of 6 families per group) plus two twenty-minute telephone sessions. Program delivered by psychologist.	82.1% retention at post (81.8% in intervention group). 76.5% retention in intervention group at FU.		*Parenting self-efficacy* PTC – Behaviour & Setting Self-Efficacy Scales Only one parent completed measures (1 was a father)	laxness** (0.51), Overreactivity*** (0.60) and Verbosity*** (0.57) with improvements for intervention group maintained at FU . *Parenting self-efficacy* Intervention group > WL on PTC behaviour*** (1.0) but no differences on PTC setting at post. Improvements maintained at FU. *TT analysis* All effects remained significant.	but not Laxness and Verbosity.	
Turner & Sanders (2006) Australia	Families of 2-6 year olds requesting advice about child behaviour or development at Community Child Health Clinics. Parents had one or more concerns about their child's behaviour or development (not assessed in a standardised	Primary Care Triple P- Positive Parenting Program. Three to four brief (30 minute) individual family consultations. Sessions once a week for three weeks, with a break of 3-4 weeks before the final session. Program delivered by child health	RCT effectiveness study. 30 Families randomised to intervention (n = 16) or waitlist control group (n = 14). 8 week waitlist period. 83.3% retention at post-assessment	Pre-post, six-month FU. Only intervention group assessed at six-month FU.	*Child behaviour* ECBI Intensity and Problem Score; PDR Total Mean and Target Mean score; HCPC Home and Community Score. *Parenting* PS Laxness, Overreactivity and Verbosity. *Parenting self-efficacy* PSOC Satisfaction	*Child behaviour* Intervention < WL in PDR Target Mean** (1.18) [2] & HCPC Home*** (1.25) [2]. No significant group differences for ECBI Intensity, ECBI Problem, PDR Mean & HCPC Community. Improvements maintained at FU for intervention group. *Parenting* Intervention < WL on laxness* (0.53) [2], overreactivity* (0.20)[2] and verbosity** (0.76) [2] at post. Improvements maintained at	*CSC* Analysis of the proportion of participants moving from clinical to nonclinical range calculated for PDR target score only (only measure with means in clinical range at pre) show 7.7% children in clinical range at	17

Authors/ Country	Study Sample, recruitment & inclusion criteria	Intervention – name, format and duration	Design of study (n) & retention rate	Timing of measures	Targeted outcomes and measures	Results including statistical significance (and effect sizes)	Clinical significance & Reliable Change	Quality Index Score
	way). Sessions were attended by mothers only except in one case.	nurses.	(81.3% retention in intervention group). 100% intervention families assessed at follow-up.		and Efficacy *Parental mental health* DASS-21 Depression, Anxiety and Stress Scales *Observed Parent-Child Interaction* 15 min videotaped recording. Coded for disruptive child behaviour and parent positive and aversive behaviour using FOS.	FU on overreactivity and verbosity but not laxness. *Parenting self-efficacy* Intervention > WL on PSOC Satisfaction** (1.02) [2] not Efficacy, improvements maintained at FU. *Parental mental health* Intervention < WL on anxiety* (0.61)[2] and stress* (0.49)[2] not depression at post, with improvements not maintained at follow-up. *Observed Parent-Child Interaction* Group differences NS. *ITT analysis*. All effects remained significant.	post vs 61.5% in waitlist**. *RCI* Intervention > waitlist on reliable change at post for HCPC Home*, PSOC Satisfaction**, Verbosity** but not for PDR Target mean, Laxness, Overreactivity or DASS Stress.	

Note. ECBI = Eyberg Child Behaviour Inventory; PS = Parenting Scale; PSOC = Parenting Sense of Competence Scale; DASS = Depression, Anxiety and Stress Scale; HCPC = Home and Community Problem Checklist; PDR = Parent Daily Report; SSBS = School Social Behaviour Scales; TRF = Teacher Report Form of Child Behaviour Checklist; PPI = Parent Practices Interview; SCL-5 = Symptom Checklist-5; FOS = Family Observation Checklist; PBQ = ;BSI = ; PPC = Parent Problem Checklist; PTC = Parent Task Checklist; WL = waitlist; CSC = Clinically Significant Change; RCI = Reliable Change Index; ITT = Intention to Treat; FU = Follow-up; NS = Not significant [1] Bradley *et al*. (2003) reported effect sizes separately for intervention and control group for difference between pre and post. The effect sizes for pre-to-post differences for intervention group only are reported here. Effect sizes for other studies report the difference between the intervention and control/comparison group. [2] Turner & Sanders (2006) did not list effect sizes so these were calculated based on means and standard deviations in the article. *p<.05, **P<.01, ***p<001

delivered by primary care practitioners. The final study was also an effectiveness study of a psychoeducational parenting intervention which involved four two-hour group sessions using the videotape from the 123 Magic Program and was delivered in community agencies by community facilitators in Canada (Bradley et al., 2003).

3.3.3 Results

Morawska et al. (2011) found the Triple P Parent Discussion Group resulted in significantly lower parent-rated child behaviour problems at post-assessment when compared with waitlist, with large effect sizes and changes maintained at six month follow-up. Similarly, the intervention group reported significantly lower dysfunctional parenting and higher parenting efficacy at post-assessment with moderate to large effect sizes, and improvements maintained at follow-up. The intervention group showed more reliable change on child behaviour and parental overreactivity at post-assessment. Joachim, Sanders and Turner (2010) found a similar, but less consistent pattern of findings. The intervention resulted in significantly fewer child behaviour problems, less dysfunctional parenting and greater parenting efficacy than the waitlist control group at post-assessment with moderate to large effect sizes. No significant group differences in parental mental health emerged. The improvements in child behaviour and parenting efficacy but not parenting were maintained at six month follow-up. A greater proportion of children in the intervention group were in the non-clinical range on one out of two measures of child externalising behaviour as well as for the measure of dysfunctional parenting and parental efficacy when compared with waitlist. Greater reliable change was found for the intervention group relative to waitlist on one out of two measures of

child behaviour and parenting efficacy at post-assessment, but not for the measures of dysfunctional parenting.

Turner and Sanders (2006) found Primary Care Triple P resulted in significantly lower child behaviour problems compared with the waitlist group on two out of six measures of child behaviour, with large effect sizes and improvements maintained at follow-up. At post-assessment, 7.7% of children in the intervention group were in the clinical range versus 61.5% in waitlist. The intervention group had significantly lower ratings of dysfunctional parenting, parental anxiety and stress (but not depression) and higher ratings of parenting satisfaction (but not efficacy) at post compared with the waitlist group, with improvements maintained at follow-up. This study also included a 15 minute observational parent-child interaction task and no group differences in parent or child behaviour emerged.

Kjøbli and Odgen (2012) and Kjøbli and Bjørnbeck (2013) found parents who received PMTO rated children as having significantly fewer behaviour problems compared with a comparison group at post-assessment and six month follow-up, with small to moderate effect sizes. This study also included teacher reports of child behaviour but no significant group differences were found on this measure. The intervention group reported increased positive parenting, and reduced harsh discipline at post-assessment and follow-up when compared with the comparison group, with large effect sizes at post-assessment which were low to medium at follow-up. Significant group differences were found for post-assessment but not follow-up for harsh discipline for age and inconsistent discipline, but there were no significant differences at post or follow-up for appropriate discipline or clear expectations. There were no significant group differences in ratings of parental

mental health at post-assessment, but differences approached significance by six month follow-up.

Bradley et al. (2003) found families who received the brief psychoeducational parenting intervention reported less child problem behaviour problems when compared with waitlist on two out of three measures at post-assessment, with small effect sizes. Improvements were maintained for a subsample examined at one-year follow up. The intervention group also reported significantly lower dysfunctional parenting and parental hostility than waitlist at post-assessment with improvements again maintained at follow-up.

3.3.4 Quality of included studies

For the five included studies, the total mean score on the modified Quality Index (Downs & Black, 1998) was 16.4 out of 23 (SD = 1.84, range 14 to 18). The mean subscale scores were 8.2/9 for reporting (SD = 0.75, range 7-9), 7.4/10 for internal validity (SD = 0.64, range 6-8) and 0.8/3 for external validity (SD = 0.4, range 0-1). None of the studies reported a formal power calculation so all scored 0/1 on this subscale.

3.4 Discussion

3.4.1 Main findings

Despite the large body of research on parenting interventions over the past 30 years, this systematic review identified only identified six articles describing five studies on brief parenting interventions that met inclusion criteria. This is surprising and indicates that it is an area that requires more research, especially given that brief interventions may already be being delivered in clinical practice (Perkins, 2006).

However, the findings from these five studies with 557 families in three countries are promising and suggest that brief parenting interventions may be effective in reducing child externalising behaviours and dysfunctional parenting for parents seeking help for emerging problem behaviours in their young children. Across all five studies there were significant group differences in parent reported externalising behaviour at post-assessment relative to the control/comparison group with changes maintained at follow-up. The findings for dysfunctional parenting showed a similar pattern with significant reductions at post-assessment which were maintained at follow-up in all but one study (Joachim, Sanders & Turner, 2010). Similarly, the three studies that included a measure of parental self-efficacy or satisfaction found significant group differences on this measure.

For this review, brief interventions were defined as less than 8 sessions in duration, but the interventions in the included studies were very brief ranging from 1 session (2 hours duration) to 4 sessions (8 hours duration). Despite being very brief, large effects sizes for group differences in child externalising behaviour were found for the three studies on Triple P (Joachim Sanders & Turner, 2010; Morawska et al., 2011; Turner & Sanders, 2006) with smaller effects in for the studies on the psychoeducational parenting intervention and PMTO (Bradley et al., 2003; Kjøbli & Ogden, 2012). These findings suggest brief parenting interventions may be sufficient to modify dysfunctional parenting and in turn reduce emerging child behaviour problems, at least for some families. It should be noted, however, that a consistent pattern of findings did not always emerge across all measures in each study. For example, Turner and Sanders (2006) found group differences on only 2 out of 6 measures of child externalising behaviours.

While relatively consistent findings were seen for child externalising behaviour and parenting, there were less consistent findings for measures of mental health and parental relationships. Four out of five studies included a measure of parental mental health, and significant group differences were only identified for two studies (Bradley et al., 2003; Turner & Sanders, 2006). The one study that used a measure of parental conflict found no significant group differences (Joachim, Sanders & Turner, 2010). It is possible, therefore, that brief interventions may be sufficient to modify dysfunctional parenting, but longer interventions may be necessary to modify other, more distal, family risk factors.

Overall, the quality ratings for included studies were adequate, although higher scores were obtained for the reporting and internal validity subscales than for the external validity subscale. In relation to external validity, the three efficacy studies included in this review used community outreach campaigns to recruit self-referred families, so they were not able to address the issue of representativeness of participating families. Wilson et al. (2012) hypothesised that self-referred families may be more motivated and compliant when compared with most families in the population leading to a better than average response to intervention. The two effectiveness studies included in this review which did not rely on self-referred families also failed to include information about representativeness of the sample. Thus, it is possible that the families included in these five studies are not representative of families in the population who would be eligible to participate in the research and as a consequence, the findings of these studies overstate the efficacy and effectiveness of brief parenting interventions. It is difficult to report the representativeness of self-referred parents who participate in a parenting

intervention (in comparison with those in the general population who are eligible to participate), as information is not usually available on the characteristics of parents who do not participate. However, reporting on sample representativeness may be possible when subjects are drawn from a specific population (e.g., clinic referred families) and future research should aim to report this where possible.

All included studies relied on parent-report of child behaviour from one parent (usually the mother, although this was not specified in two studies). Where teacher reports (Kjøbli & Bjornebekk, 2013; Kjøbli & Ogden, 2012) and observational measures (Turner & Sanders, 2006) were used, group differences for child externalising behaviour were non-significant. Thus, there is currently no evidence from any independent measure that brief parenting interventions result in reductions in child externalising behaviour. Due to the potential biases of parent-report data, it is important to include independent measures of child behaviour in future research, such as videotaped observations of parent-child interactions. Also lacking from the studies reviewed was father ratings on outcome measures as well as information about fathers' involvement in the interventions. Recent reviews have highlighted the importance of reporting this information (e.g., Fletcher, Freeman & Matthey 2011; Smith, Duggan, Bair-Merritt & Cox, 2012; Tiano & McNeil, 2005) and including fathers in the intervention, especially since there is some evidence that fathers involvement may lead to enhanced outcomes for children (Bagner & Eyberg, 2003; Tiano & McNeil, 2005). In addition, no study compared a brief with a longer parenting intervention to demonstrate equivalence and, according to Bower and Gilbody (2005), this is critical in order to support a stepped-care model of service delivery.

All five studies recruited parents of children concerned about or seeking help for their child's behaviour and none included children who were diagnosed with ODD or in the clinical range for child externalising behaviour so the effects of brief parenting interventions for parents of children with more severe externalising behaviours are unknown. It may be that brief parenting interventions are best suited towards families at low to moderate level of difficulty (Sanders, 2008). Clearly, not all families will benefit from a brief intervention and future research should aim to examine the moderators or predictors of outcome. However, even if brief interventions are only effective with a small proportion of families, their ease of dissemination and low cost may mean that they are worthwhile alternative to more intensive interventions (Kazdin, 2008).

3.4.2 Limitations and recommendations for future research

The key limitation of this review was the inability to conduct a meta-analysis due the heterogeneity of included studies, which meant the strength of the effects of brief parenting interventions could not be quantified. In addition, the review included only published articles in English language and there may have been unpublished articles and articles in non-English-language that may have been missed. This may have impacted on the conclusions of the review.

Given the lack of research on brief parenting interventions, further research is needed and should aim to: compare brief with longer interventions; include independent measures of child outcomes; include fathers in the parenting interventions and report on father outcomes; and include parents of children with clinical levels of externalising behaviour problems. Chapter 4 presents the findings of

an RCT that compares a brief with standard parenting intervention in order to address these gaps in research.

3.5 Conclusions

The findings of this review suggest that brief parenting interventions of less than 8 sessions may be sufficient to change dysfunctional parenting and reduce child externalising behaviour and may show promise as an initial intervention as part of a stepped-care model of intervention. However, further research is needed to determine the efficacy of brief interventions, especially in comparison to longer interventions, and this will be addressed in the next Chapter.

CHAPTER 4

RANDOMISED CONTROLLED TRIAL OF BRIEF VERSUS STANDARD GROUP PARENTING INTERVENTION FOR TODDLER AGGRESSION

4.1 Introduction

As reviewed in Chapter 1, externalising behaviours are associated with significant impairment in functioning (e.g., Campbell et al., 2006), are the main reason for referral to child and adolescent mental health services (Kazdin, 1995, 2008), and are associated with significant long term negative outcomes (e.g., Colman et al., 2008). Childhood physical aggression is a key feature of externalising behaviours and disruptive behaviour disorders, and chronic physical aggression is a more important risk factor for adverse long term outcomes, such as violent and non-violent offending and poorer academic performance, when compared with other externalising behaviours (Broidy et al., 2003; Nagin & Tremblay 1999; Pingault et al., 2013). While physical aggression is developmentally normal in young children, research has also found it to be significantly stable over time, even from the age of 12 months (Alink et al., 2006; Van Zeijl et al., 2006). Longitudinal research shows that there is a small group of children who show chronic physical aggression, and toddlers with frequent physical aggression are at high risk of remaining on these chronic trajectories (Côté et al., 2006; 1999; NICHD Early Child Care Research Network, 2004; Shaw, Gilliom, Ingoldsby, & Nagin, 2003; Tremblay et al., 2004).

Dysfunctional discipline and coercive parent-child interactions have consistently been shown to contribute the development and maintenance of child externalising behaviours. Over the past 30 years there has been significant research on parenting interventions based on social learning and cognitive behavioural

theories, which target dysfunctional discipline and coercive parent-child interactions. This body of research (reviewed in Chapter 2) has demonstrated that parenting interventions are effective in modifying dysfunctional discipline, leading to reductions in child externalising behaviours. While parenting interventions often target the early childhood years, there has been little research on the efficacy of parenting interventions for physical aggression in early childhood. This is a notable gap in research given the onset of physical aggression is during the toddler years, parents may be more receptive to parenting interventions during this period, and parenting interventions may be more effective in the early years, before coercive parent-child interactions become entrenched (e.g., Gardner, Hutchings, Bywater & Whitaker, 2010).

There are several evidence-based parenting interventions, and Triple P – Positive Parenting Program (Sanders, 1999) - has a strong evidence-base and is widely implemented. However, a key limitation of evidence-based parenting interventions including Triple P is the lengthy duration of programs, which are usually 8 to 12 sessions in duration but may be as many as 24 sessions in individual or group formats. While these standard duration parenting interventions are effective, they are unlikely to reach a large number of families and therefore have minimal impact on the prevalence of disruptive behaviour disorders. Lengthy interventions are also resource-intensive, costly and require significant clinical time through training and supervision of staff. While primary care practitioners are best placed to deliver parenting interventions, the lengthy duration means it is unlikely they will be able incorporate such interventions into their practice.

There is growing recognition that in order to radically extend the reach of parenting interventions and make a significant impact on the child externalising behaviour problems at a population level, a paradigm shift is needed. Instead of providing intensive interventions to all families, brief interventions can be delivered as a first step in a stepped care approach, with more intensive interventions provided if improvements are not observed. The systematic review presented in Chapter 3 examined the evidence for efficacy and effectiveness of parenting intervention of less than 8 sessions in duration for improving child externalising behaviours. While only five studies were found, the findings suggest that even very brief interventions can result in significant reductions in parent-reported externalising behaviours and dysfunctional discipline at post-intervention, when compared with a control or comparison groups, with changes maintained at follow-up. The current study will address the limitations of the research included in the systematic review by: comparing a brief with a standard duration intervention and a waitlist control group; including fathers in the intervention and reporting on their outcomes; and including an independent observational measure of parent and child aversive behaviour.

None of the studies of brief interventions included in the systematic review specifically targeted aggressive behaviour in children; however, there is no reason to expect that brief parenting interventions would not be sufficient to reduce aggressive behaviour in the toddler years, at least for some children. Aggression is one of the main externalising behaviours and it is likely that children participating in the studies included in the systematic review displayed a range of externalising behaviours, including aggression. Despite aggressive behaviours being more stable than other externalising behaviours, not all parents of aggressive toddlers will require intensive and lengthy support to bring about changes in their parenting and their child's

behaviour. In fact, since aggressive behaviour in toddlers is likely to be viewed by parents as developmentally normal, brief interventions may be regarded as being more appropriate for these common and normative behaviours, and parents may be reluctant to participate in more intensive interventions.

4.1.1 Potential significance of the research

The findings of this study have the potential to change the way parenting interventions are delivered which could broaden their reach and lead to a greater impact on the prevalence of externalising behaviour problems in children. This study will make an important and unique contribution to this field by directly comparing the relative efficacy of brief and standard parenting interventions in a RCT with a waitlist-control group. It will also examine the efficacy of parenting interventions for toddlers with high levels of aggression, a group that is at high risk for chronic trajectories of antisocial behaviour and is rarely targeted in research on parenting interventions.

4.1.2 Aims

The broad aim of this study is to enhance the reach and impact of parenting interventions in the toddler years in order to reduce the prevalence of child behavioural problems, with a specific focus on toddler physical aggression. The specific aims of this study are to examine the relative efficacy of a standard (8 session) parenting intervention with a brief (3 session) intervention and a waitlist control group, in terms of impact on toddler physical aggression and externalising behaviours, dysfunctional parenting and related aspects of parent functioning, in both the short- and longer-term.

4.1.3 Design

The design for this study is a 3 group [8 session standard parenting intervention (SPI) vs 3 session brief parenting intervention (BPI) vs 8 week waitlist (WL) control group] x 3 time (pre, post and 6 month follow-up) repeated measures randomised controlled trial (RCT). The WL group will be offered the choice of participating in the SPI or the BPI group after completing post-assessment, but will not be followed-up further after participation. The reporting of this RCT will be conducted in accordance with Consolidated Standards of Reporting Trials (CONSORT 2010) statement (Schultz, Altman & Moher, 2010). The completed CONSORT checklist for this RCT is included in Appendix D.

4.1.4 Hypotheses

The hypotheses for this study were based on findings from previous studies showing significant group differences (with moderate to large effect sizes) between brief parenting interventions and control or comparison groups (see Chapter 3). While this was the first study to compare brief and standard group parenting interventions with a waitlist control group, overall it was expected that brief and standard group parenting interventions would both show superior results when compared with waitlist at post-assessment but would not differ significantly from one another at post-assessment or at follow-up. Thus, there were two specific hypotheses for this study. Firstly, it was expected that at post-assessment families in SPI and BPI would show significantly greater reductions compared with WL in observed and parent-reported child aggression and externalising behaviours, dysfunctional parenting practices, and parent-reported negative affect. It was also expected that families in the SPI and BPI groups would show significantly greater

improvements in parent-reported behavioural self-efficacy and satisfaction with the partner relationship compared with WL. Secondly, at 6 month follow-up, it was expected that families in the BPI would maintain post-intervention changes and would show equivalent durability in outcomes to the SPI.

4.2 Method

4.2.1 Participants

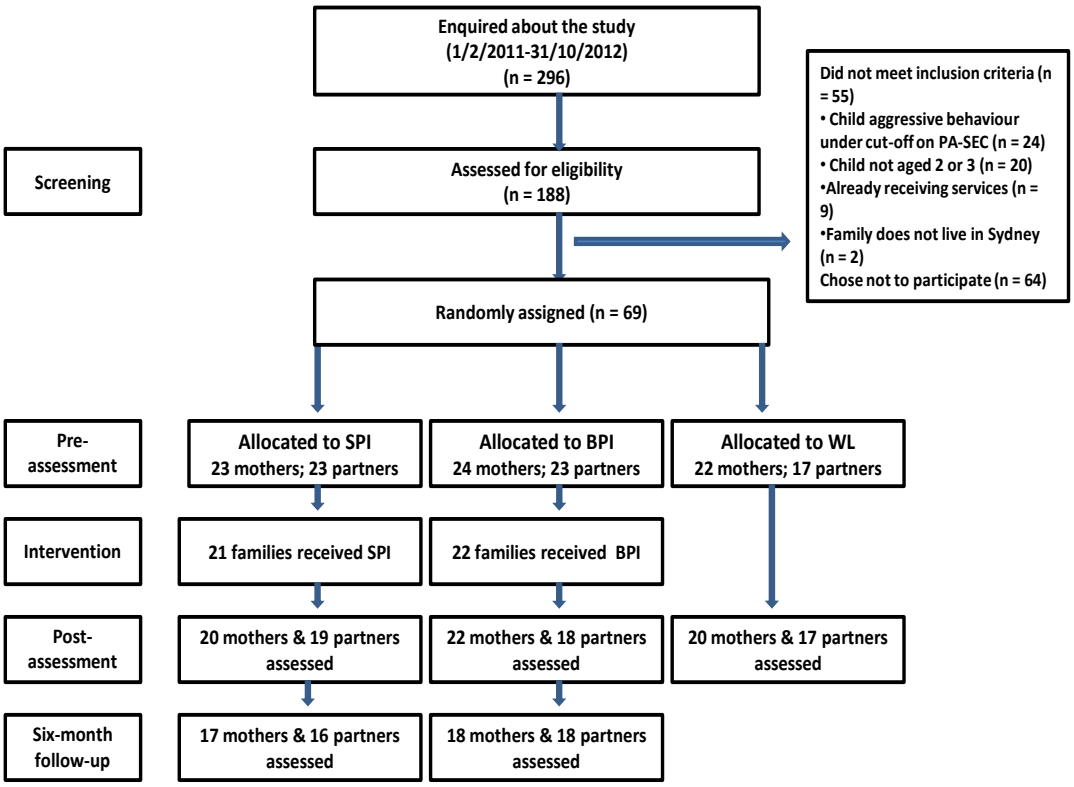
Participants were 69 self-referred families with a child aged 2 or 3 years. Families responded to a community outreach campaign that included advertisements on parenting websites and in parenting magazines as well as flyers sent to child care centres, general practitioners, child health nurses and articles in newspapers. The study was named the Toddler Positive Parenting (ToPP) Study. Recruitment took place over a 21 month period from February 2011 to October 2012.

A standardised telephone interview was used to screen families for the following eligibility criteria: (1) child aged 24 to 47 months (inclusive); (2) parent would like assistance managing child's aggressive behaviour; (3) child is one standard deviation above the mean on Physical Aggression Scale for Early Childhood (PA-SEC; Alink et al., 2006) with a score or 5 or more for girls and 7 or more for boys; (4) parent/s live in Sydney and are willing to attend University of Sydney for an initial interview as well as participation in the group parenting interventions; (5) parents can complete questionnaires in English; (6) child does not have a developmental delay (other than language delay), disability or chronic illness; (7) the family is not currently receiving, or planning to receive, another parenting intervention or assessment for child's behaviour; or the child is not receiving

treatment from counsellor, psychologist or psychiatrist; and (8) the family has not previously participated in a Triple P Parenting Program.

In total 296 families responded to the outreach campaign. See Figure 2 for the CONSORT flow chart for recruitment to the study. Of the 296 families who enquired about the study via email or telephone, 188 (63.5%) families were assessed for eligibility via the telephone. The remaining 108 families did not reply to an email describing the study and so were not able to be assessed. Of the 188 families assessed, 64 (34.0%) met eligibility criteria but chose not to participate, 55 (29.3%) did not meet eligibility criteria and 69 (36.7%) met criteria and were randomised to the study. Of the 55 families who were not eligible to participate, the reasons were: (1) child was under the cut-off on the PA-SEC for aggression (n = 24; 43.6%); (2) the child was not aged 2 or 3 years (n = 20; 36.4%); (3) families were currently receiving services for their child's behaviour (n = 9; 16.4%); and (4) families did not live in Sydney (n = 2; 3.6%). The 64 families who met eligibility criteria but chose not to participate were not asked to provide a reason for not wanting to take part in the study. Socio-demographic characteristics of the sample are summarised in Table 2. Just over two-thirds (69.6%) of children in the sample were boys. The majority (94.2%) of families were two-parent families, of which two families were same-sex couples, both females. Thus, rather than using the term 'father', the term 'partners' will be adopted as an alternative. Almost three quarters of mothers (73.9%) and more than half of partners (57.1%) had university educations. While only 40% of mothers were currently employed (as many were on maternity leave) almost all (98.5%) of partners were employed and 70% of families had an income greater than

Figure 2. CONSORT Flowchart for recruitment through screening, pre-assessment, post-assessment and six month follow-up



$90,000 per year. Thus, the majority of the families in the sample could be considered moderate to high income earners. In one-third of families (33.3%), the target child was the only child in the family. One in five families (20.3%) considered their child's cultural background to be non-Australian, with the following cultural groups represented: Brazilian, Swedish, Indian, German, Italian, French, Lebanese and Ecuadorian. More than three-quarters (78.3%) of the children in the sample attended formal childcare. More than half (61.7%) of families reported seeking help in the past year for their child's behaviour and of those, about one-third reported seeking help from child health nurse (33.4%) or general practitioner (32.4%), and

Table 2. *Sociodemographic characteristics of the 69 families in the RCT*

Sociodemographic variables	Mean (SD), range
Child age (months)	31 months (*SD* = 5.1), range 24 – 46
Mother age (years)	36 years (*SD* = 5.4), range = 20 – 47
Partner age (years)[1]	38 years (*SD* = 4.8), range = 29 – 49
Number of siblings	0.8 (*SD* = 0.7), range 0 – 3
	n (%)
Child Gender Male	48 (69.6%)
Siblings	
None	23 (33.3%)
One	35 (50.7%)
Two or Three	11 (16.0%)
Family Type	
Two parent family	65 (94.2%)
Sole parent	4 (5.8%)
Child's cultural group	
Australian	55 (79.7%)
Other	14 (20.3%)
Mother Education	
Year 12 or less	4 (5.8%)
TAFE College/Trade Certificate	14 (20.3%)
University Degree	51 (73.9%)
Partner Education[1]	
Year 12 or less	7 (11.1%)
TAFE College/Trade Certificate	20 (31.8%)
University Degree	36 (57.1%)

Sociodemographic variables	n (%)
Mother currently employed	28 (40.6%)
Partner currently employed[2]	64 (98.5%)
Family income[3]	
Less than $25000	2 (3.0%)
$25000-$70000	6 (9.0%)
$70000-$90000	12 (17.9%)
$90000-$110000	9 (13.4%)
Over $110000	38 (56.7%)
Child attends childcare	54 (78.3%)
Sought help in last year about child's behaviour[4]	42 (61.7%)
Help from Child health nurse	23 (33.4%)
Help from GP	22 (32.4%)
Help from Paediatrician	7 (10.3%)

Note. [1] n = 63 fathers participated in the study at pre-assessment

[2] n = 65 families were two parent families

[3] n = 67 families answered this question

[4] n = 68 families answered this question

one in ten (10.3%) from a paediatrician. Out of the 42 families who sort help, 13 (31.0%) sort help from 2 or more professionals.

At pre-assessment 63 partners participated in the study. Four families were single parent families and did not have partners. For two additional families, partners chose not to complete questionnaires for the study.

4.2.2 Measures

The measures used for this study include parent-report measures (for mothers and partners) as well as observational measures. Unless stated, all measures were completed at pre- and post-assessment and 6 month follow-up. For the waitlist group, the measures were completed pre- and post-assessment only.

1. Parent-report measures.

(a) Child aggressive and externalising behaviour.

Physical Aggression Scale for Early Childhood (PA-SEC; Alink et al., 2006). The PA-SEC is an 11 item scale measuring physical aggression in the toddler years. Eight of the 11 items originated from the 11-item measure used by Tremblay et al. (1999). Parents were asked whether the child showed the behaviours (e.g., kicks others, bites others, starts fights) during the previous 2 months. The items were scored on a 3-point Likert scale with responses of *not true* (0), *somewhat or sometimes true* (1), and *very true or often true* (2). The PA-SEC has good one-year stability with correlations of $r = 0.63$ for 24-month olds and $r = 0.72$ for 36-month olds and good cross-informant agreement with mean mother-father correlations of $r = 0.58$ (Alink et al., 2006). Internal consistency measured by Cronbach's alpha were good for 2 and 3 years olds for mothers and fathers ratings (2 years: mother $\alpha = 0.81$, father $\alpha = 0.80$; 3 years: mother $\alpha = 0.83$, father $\alpha = 0.82$. In the current

sample, internal consistency as measured by Cronbach's alpha was good for partners (α = 0.81) but poor for mothers (α = 0.42). As this scale does not have clinical cut-off scores, for entry to the study the mean plus one standard deviation was used to represent a frequent level of aggression. The means and standard deviations were taken from a community sample of 2253 children in the Netherlands (Alink et al., 2006). For children aged 24 months the means for this community sample were 3.72 (*SD* = 3.35) and 2.63 (*SD* = 2.59) for boys and girls respectively, according to mothers' ratings. For children aged 36 months, the means were 3.51 (*SD* = 3.24) and 2.41 (*SD* = 2.77) for boys and girls respectively, according to mothers' ratings (Alink et al., 2006). For inclusion in the present study a score of 7 or more was used as the cut-off for boys and a score of 5 or more was the cut-off for girls. The average score for the current sample was 10.39 (*SD* = 2.77) as rated by mothers and 7.14 (*SD* = 3.78) as rated by partners, out of a maximum score of 22.

Child Behaviour Checklist 1.5-5 (CBCL1.5-5; Achenbach & Rescorla, 2000). The CBCL 1.5-5 is a 99 item questionnaire which assesses three domains (internalising, externalising, and total problems) for children aged 18 months to 5 years. The items were responded to on a 3-point Likert scale with responses of *not true* (0), *somewhat or sometimes true* (1), and *very true or often true* (2). The externalising scale consists of Aggressive Behaviour and Attention Problem subscale but since attention problems are not relevant to the sample included in this study, only scores on the Aggressive Behaviour Scale were reported in this study. It should be noted that out of the 19 items in the Aggressive Behaviour subscale, only a few relate to physically aggressive behaviour (e.g., hits others, attacks people, destroys things belonging to his/her family or other children) with the remaining items assessing more general oppositional behaviour (e.g., defiant, easily frustrated,

screams a lot). Cut-points indicating 'borderline clinical' range (*t*-score 65-69) and 'clinical' range (*t*-score ≥ 70) have been developed. The Aggressive Behaviour subscale has excellent 8-day test-retest reliability (*r* = 0.87) and good cross-informant agreement (mean mother-father *r* = 0.66, mean parent-child care provider *r* = 0.55). For the current sample, 26.1% of children were in the clinical range at pre-assessment on the Aggressive Behaviour subscale according to mothers' ratings (20.6% according to fathers' ratings) and an additional 24.6% were in the borderline clinical range according to mothers (17.5% for fathers). Thus, just over half (50.7%) of children in the current sample were in the clinical or borderline clinical range for aggressive behaviour at pre-assessment according to mothers' ratings.

(b) Dysfunctional discipline

Parenting Scale (PS; Arnold, O'Leary, Wolff & Acker, 1993). The PS is 30-item questionnaire that measures dysfunctional discipline styles in parents. Each item has a 'more effective' and 'less effective' anchor, and parent indicate on a 7-point scale which end better represents their parenting. It yields a total score based on three factors: Laxness (permissive discipline); Overreactivity (authoritarian discipline, displays of anger, meanness and irritability), and Verbosity (overly long reprimands or reliance on talking). In the original validation study, scores on the laxness and overreactivity factors significantly discriminated clinic-referred from non-clinic parents and all factors were significantly associated with parent-reported child behaviour problems and observed dysfunctional parenting. Internal consistency is acceptable to good with coefficients of Cronbach's α = 0.83 for laxness, α = 0.82 for overreactivity and α = 0.63 for verbosity (Arnold, O'Leary, Wolff & Acker, 1993). Two-

week test-retest reliability correlations were good with r = 0.83 for laxness, r = 0.82 for overreactivity and r = 0.79 for verbosity (Arnold, O'Leary, Wolff & Acker, 1993).

It is important to note that not all research findings support the three-factor structure identified by Arnold, O'Leary, Wolff and Acker (1993), and subsequent factor analyses have not found support for the verbosity subscale (see Salari, Terreros & Sarkadi, 2012 for review). However, it has been hypothesised that verbosity may only be relevant to toddlers since they do not yet fully understand verbal reasoning (Rhoades & O'Leary, 2007). The studies that have not found support for the verbosity subscale have been limited in that they did not include parents of toddlers in their samples (Salari, Terreros & Sarkadi, 2012). On the basis of the literature reviewed in Chapter 1 regarding the significant association between verbosity and aversive child behaviour, the verbosity subscale was retained for the present study. For the current sample, 49.3% of mothers and 33.3% of partners scored in the clinical range on overreactivity, 34.5% of mothers and 27.0% of partners scored in the clinical range for laxness, and 15.9% of mothers and 25.4% of partners scored in the clinical range for verbosity at pre-assessment.

(c) Behavioural Self-Efficacy

Parenting Task Checklist (PTC; Sanders & Woolley, 2001). The PTC is a 28-item tool used to assess parents' self-efficacy with parenting and includes two subscales measuring parents' confidence in dealing with challenging behaviours: Behavioural Self-Efficacy and Setting Self-Efficacy. For the current study, the Behavioural Self-Efficacy scale was used to assess parental confidence in managing challenging behaviour. This scale measure parents' confidence in dealing with 14 difficult child behaviours like whining, interrupting and temper tantrums. For each item, parents

are asked to indicate on a scale of 0 (*certain I can't do it*) to 100 (*certain I can do it*) in relation to how confident they feel in managing child's behaviour. Sanders and Woolley (2005) demonstrated that mothers from a normative community sample showed significantly higher behavioural self-efficacy scores than mothers from a clinic sample. In the current sample, internal consistency as measured by Cronbach's alpha was excellent for mothers and partners (α = 0.95 and α = 0.96 respectively).

(d) Parental relationships satisfaction

Quality of Marriage Index (QMI; Norton, 1983). The QMI is a six-item global measure of relationship quality and satisfaction recommended by Bradbury, Fincham, and Beach (2000). Five items assess various aspects of marital relationships on a 7-point scale from 1 (*strongly disagree*) through to 7 (*strongly agree*), and one global item assesses the happiness of the relationship from 1 (*unhappy*) through to 10 (*perfectly happy*). Scores can range from a minimum of 6 to a maximum of 45. Internal consistencies for the current sample were excellent with α= .93 for mothers and α = 0.95 for fathers. Scores of less than 29 indicate relationship distress and in the present sample 10.8% of mothers and 1.6% of partners scored in the distressed range on this measure at pre-assessment.

(e) Parental Negative Affect

Depression, Anxiety and Stress Scale 21 (DASS- 21: Lovibond & Lovibond, 1995). The DASS-21 measures the severity of a range of symptoms common to depression, anxiety and stress over the previous week. Each item is scored on a 4-point scale from 0 (*did not apply to me at all*) to 3 (*applied to me very much or most of the time*). The DASS-21 has good internal consistency for depression (α = 0.88),

anxiety (α = 0.82) and stress (α = 0.90) scales and good discriminant and concurrent validity when compared with other validated measures of depression and anxiety (Henry & Crawford, 2005). For the current sample at pre-assessment, 26.1% of mothers and 20.6% of partners scored above the normal range for depression, 20.3% of mothers and 12.7% of partners scored above the normal range for anxiety and 39.1% of mothers and 22.2% of partners scored above the normal range for stress.

(f) Perceived demands of the intervention

Existing scales that measure perceived demands of intervention (such as Treatment Demands Subscale of *The Barriers to Treatment Participation Scale*; Kazdin, Hollan, Crowley & Breton, 1997) were not appropriate for the interventions examined in the present study, so a new 5-item scale was developed (see Appendix A). These items assessed perceived demands of the intervention including: time involved in attending the program; time involved in completing homework tasks; transport; arranging childcare; and difficulty of the information presented to understand. These questions were completed on a 5-point scale from *extremely difficult/demanding* (5) through to *extremely easy/undemanding* (1). Cronbach's alpha for internal consistency of the items was acceptable for fathers (α = .71) but poor for mothers (α =.51). One additional question asked parents whether they perceived the duration of the program was too long, too short or the right length. This question was completed on a 7-point scale from *far too short to be helpful* (1) through to *far too long to long to be helpful* (7), with the mid-point of the scale rated *right length* (4). For analysis, this scale was recoded into two categories: too short or not too short. The six questions on perceived demands were completed only at post-intervention by families in the SPI and BPI.

(g) Parent satisfaction with the intervention

Client Satisfaction Questionnaire (CSQ) was adapted from Therapy Attitude Inventory (Eyberg, 1993) and included 13 items addressing the quality of the service provided; how well the program met the parents' needs, increased the parents' skills and decreased the child's problem behaviours; and whether the parent would recommend the program to others. The score derived is a composite score of program satisfaction ratings on a 7-point scale with a minimum score of 13 and a maximum score of 91. In the present sample, the scale had excellent internal consistency using Cronbach's alpha (α = 0.96 for mothers and α = 0.96 for partners). The CSQ was completed only at post-assessment by mothers and partners who received SPI and BFI.

(h) Family socio-demographic information

Family Background Questionnaire (FBQ; adapted from Zubrick et al., 1995). The FBQ was administered only at pre-intervention and collected socio-demographic information about the family including child and parent age, family structure, marital status, parent education level, employment details, income and cultural background. Questions were also added regarding previous help seeking by parents for their child's behaviour. Families were asked whether they had consulted child health nurse, general practitioner or paediatrician in the past year about their child's behaviour.

(i) Expectations and motivation

To assess expectancy at pre-assessment (following randomisation) families were asked how helpful they thought the program would be to them as a parent, how helpful it would be for their child's behaviour and how motivated they were to attend

the parenting groups. They responded to all three questions on a 5-point scale from *not at all helpful/motivated* (1) through to *very helpful/motivated* (5). Only one parent responded to these questions (usually the mother).

2. Observed measures.

Observed measures of child and parent behaviour were coded from a 20-minute videotaped parent-child interaction task. This task was divided into four 5-minute tasks: (1) Free play task, which involved parent and child playing with three boxes of toys; (2) Clean up compliance task, in which the parents were given a standard instruction (printed on a card) to ask their child to pack away the toys; (3) Parent-led teaching task, which involved parents and children completing a jigsaw puzzle together; and (4) Independent play task, where parents completed a questionnaire while their child played independently with a toy. The aim of these tasks was to replicate experiences that occur regularly in family life (Sanders, Markie-Dadds, Tully & Bor, 2000) and similar tasks have been shown to differentiate children with and without conduct problems (Sanders, Dadds & Bor, 1989).

The observations were coded according to the *Family Observation Schedule* (FOS; Sanders, Waugh, Tully & Hynes, 1996), which is a microanalytic coding system in which the presence or absence of particular behaviours of both the child and parent are coded in ten second intervals. The FOS originally included 12 categories of parent behaviour and 9 categories of child behaviour. However for this study, parents were coded for overall aversive parenting (which included aversive instructions, threats, sarcasm and physically negative behaviours such as grabbing or smacking the child) and children were coded for overall aversive behaviour (which included noncompliance, demands, oppositional behaviour and physical aggression)

as well as specifically for physical aggression. The outcome measures derived were percentage of intervals in which the category of behaviour occurred.

Families were randomised to participate in the video observation task, so observational data was recorded for just over half of the sample (52.2%). Only one father participated in the parent-child interaction task, the rest were mothers.

The videotaped interactions were coded by volunteer research assistants. One was a second year undergraduate psychology student and the other had completed four years of psychology training. Both volunteer coders were not aware of the aims or hypothesis for the study, group allocation and timing of assessment. The volunteer research assistants received 8 hours of coding training with the aid of the coding manual. The study author conducted test re-test reliability checks on a random sample of 20% of the interactions and using Cohen's kappa coefficient, an average coefficient of $\kappa = 0.75$ was obtained across the codes and coders. According to Landis and Koch (1977) kappa values between 0.61 and 0.80 can be regarded as substantial, so the average kappa coefficient achieved represents a high level of reliability between coders.

4.2.3 Procedures

Ethical approval for the study was obtained in accordance with the ethical review processes of the University of Sydney (see Appendix B). Written information consent was obtained for all participating parents. Families participated in a 1-hour semi-structured interview with the study author and completed parent-report measures prior to randomisation to one of the three intervention conditions.

Families were randomised to the three intervention conditions using the next sequential opaque envelope technique as specified by Doig and Simpson

(2005). This procedure randomised families to interventions condition (SPI, BPI or WL) and videotaped parent-child interaction task following an unrestricted simple allocation (i.e., not block randomisation). This technique ensured thorough concealment of allocation sequence from researchers and participants, and provided an audit trail for checking for subterfuge. The randomisation envelopes were prepared at the commencement of the study by the study author.

Families who were allocated to the videotaped parent-child interaction completed this task immediately following randomisation, at the end of the semi-structured interview. Families were given an overview of the four tasks involved and were asked to manage any situations or behaviours in the way they would normally do at home.

Parents assigned to participate in the SPI or BPI attended the next scheduled parenting intervention at the Psychology Clinic at University of Sydney. Group sessions were usually scheduled on Saturday mornings to allow partners to attend. There was no childcare available and children were not able to attend the group sessions.

At the end of the 8 session SPI, families completed the questionnaires again (and participated in the videotaped parent-child interaction task, where applicable). At the end of the 3 session BPI, families waited until it had been 8 weeks since starting the program before completing the questionnaires again. This ensured both groups completed post-assessment after a period of 8 weeks. Waitlist families completed the questionnaires again following their 8 week waitlist period (and also participated in the videotaped parent-child interaction again, where applicable) and then selected whether they wished to participate in the SPI or BPI. After the waitlist

period, 6/20 (30.0%) of waitlist families chose to participate in SPI, 13/20 (65.0%) chose BPI and 1 family (5.0%) requested an individual session instead of a group.

For families randomised to the two active interventions (SPI or BPI), a follow-up was conducted 6 months after post-assessment and this involved completion of questionnaires and videotaped parent-child interaction (where applicable). While families were contacted 6 months after post-intervention, due to delays from families in returning questionnaires and completing the parent-child interaction, the average length of time to follow-up was 8 months after post-assessment (range 6 to 12 months). There were no significant group differences between SPI and BPI in the average length of time between post-assessment and follow-up.

4.2.4 Parenting Interventions

Description of parenting interventions. The two parenting interventions examined in this study were from Triple P (Positive Parenting Program), an evidence-based multilevel parenting and family support strategy that aims to prevent severe behavioural, emotional and developmental problems in children by enhancing the knowledge, skills and confidence of parents. As reviewed in Chapter 2, there is significant evidence from dozens of studies and four meta-analytic reviews that several variants of Triple P (including the SPI examined in the current study) are effective in improving parenting and child behaviour (de Graaf, 2008a; de Graaf, 2008b; Nowak & Heinrichs, 2008; Thomas & Zimmber-Gembeck, 2007). Both of the interventions examined in the current study included presentations by a facilitator, DVD presentations, group discussion, workbook activities, step-by-step guides to managing problem behaviours, time for parents to practice the cores parenting skills and provision of homework tasks.

The SPI examined in the current study was the Level 4 Group Triple P Program (Turner, Markie-Dadds & Sanders, 2010). This intervention involves four two-hour group sessions following by four twenty-minute telephone sessions. The four group sessions focus on the following topics: positive parenting, helping children develop, managing misbehaviour and planning ahead for high risk situations. These four sessions cover 17 core positive parenting strategies that are listed in Table 3. The group program involved active skills training to learn key parenting strategies including videotaped modelling of skills, roleplay, rehearsal and feedback. The efficacy of this program has been demonstrated in previous randomised controlled trials (Bodenmann, Cina, Ledermann & Sanders, 2008; Leung et al., 2003; Matsumoto, Sofronoff & Sanders, 2007; Turner, Richards & Sanders, 2007). The four telephone sessions, usually scheduled once per week over four weeks, aimed to assist families to implement the skills and problem-solve. Over the course of the study there were six SFI groups run, with an average of 6 parents per group (range from 5-9).

The BFI examined was a Level 3 Triple P Parent Discussion group focussing on managing fighting and aggression (Sanders & Turner, 2010). There are four topics in the Parent Discussion Group series (Hassle-free Shopping with Children, Dealing with Disobedience, Developing good bedtime routines and Managing Fighting and aggression). Two of these programs (Hassle-free Shopping and Dealing with Disobedience) have previously been examined in RCTs as reviewed in Chapter 3 (Morawska et al., 2011; Joachim, Turner & Sanders 2010). The Parent Discussion Group on Managing Fighting and Aggression used in this study has not

Table 3. *Parenting strategies covered in the Standard and Brief Parenting Interventions*

Strategies	SPI	BPI
Developing good relationships with children		
Spending time with children	✓	X
Talking with children	✓	X
Showing affection	✓	X
Encouraging good behaviour		
Using descriptive praise	✓	✓
Giving attention	✓	X
Having interesting activities	✓	X
Teaching new skills and behaviours		
Setting a good example	✓	X
Using incidental teaching	✓	X
Using ask-say-do	✓	X
Using behaviour charts	✓	X
Managing misbehaviour		
Setting clear ground rules	✓	✓
Using directed discussion for rule breaking	✓	✓
Using planned ignoring for minor problems	✓	✓
Giving clear, calm instructions	✓	✓
Backing up instructions with logical consequences	✓	✓
Using quiet time for misbehaviour	✓	✓
Using time-out for serious misbehaviour	✓	✓

Note. Standard Parenting Intervention (SPI) is Level 4 Group Triple P Program (Turner, Markie-Dadds & Sanders, 2010) and Brief Parenting Intervention (BPI) is Level 3 Triple P Parent Discussion group for managing fighting and aggression (Sanders & Turner, 2011).

previously been examined in research. This intervention involved a two-hour group program and this was followed by two twenty-minute telephone sessions. The program included 8 core positive parenting strategies (see Table 3). The 8 strategies used in this intervention were the same as those used in the SPI (in SPI strategies can be adapted for a range of problem behaviours, including aggression). However, only the key strategies necessary to change aggressive behaviour were included, and other strategies (such as those that aimed at developing good relationships with children or teaching new skills and behaviours) were not included in the intervention. Both interventions began with discussion of causes of children's behaviour and taught parents how to monitor children's behaviour. The BPI included videotaped modelling of key parenting skills but did not include the extensive roleplay, rehearsal and feedback that was included in the SPI. Over the 20-month duration of the study there were 13 BFI groups run, with an average of 5 parents per group (range 2-9).

Attendance. For the SPI, the average number of sessions (including group and telephone sessions) families received was 6.9 sessions out of maximum of 8. The average time families spent participating in the intervention overall was 8 hours 23 minutes (8 hours 15 minutes for mothers; 4 hours 35 minutes for partners). Mothers and partners attended 89% and 49% of all group sessions respectively. Overall, 65% of mothers and 32% of partners attended all group sessions (64% of partners attended at least one group session).

For the BPI, the average number of sessions (including group and telephone sessions) families received was 2.9 sessions (out of a maximum of 3 sessions) and the average time families spent participating in this program was 2 hours 36 minutes (2 hours 39 minutes for mothers; 1 hour and 46 minutes for partners). Overall 92% of mothers and 79% of partners attended the single group session.

Intervention delivery and fidelity. The parenting groups were facilitated by the study author, a registered psychologist who is trained and accredited in Triple P with several years experience delivering Triple P interventions. Assistance during the group sessions was provided by Doctor of Clinical Psychology students from the University of Sydney.

Implementation fidelity was monitored by means of protocol adherence checklists, which were completed by the facilitator following each weekly session. This recorded the proportion of content covered for each program. Overall, average protocol adherence rates were 99.5% for the SPI and 99.4% for the BPI. There was no independent measure of facilitator adherence or quality of the intervention delivery.

4.3 Results

4.3.1 Sample size calculation

An a-priori sample size calculation was performed using G*Power 3.1 (Faul, Erdfelder, Lang & Buchner, 2007). As three previous studies on brief Triple P interventions yielded large effect sizes for the differences between brief interventions and waitlist control groups in externalising behaviour (Joachim, Sanders & Turner, 2010; Morawska, Haslam, Milne & Sanders, 2011; Turner & Sanders, 2006), a large effect size was expected for differences between SPI and WL and between BPI and WL in child externalising and aggressive behaviours (no differences between SPI and BPI were expected). A sample size of 72 families (24 per group) was estimated to be sufficient to detect a large effect size for 3 group analysis of variance (power = 0.80; alpha =0.05).

4.3.2 Preliminary Analysis

Equivalence of groups. Of the 69 families randomised to the study, 23 were randomly assigned to SPI, 24 to BPI and 22 to WL. To compare families in the three groups at pre-intervention, a series of 3 (group: SPI vs BPI vs WL) ANOVAs for continuously scaled variables and chi-square tests for categorical variables (or Fisher's Exact Test where cell sizes were less than 5) were conducted across all pre-assessment measures and socio-demographic variables (36 variables). A significant difference emerged for only one variable: proportion of single parent versus two parent families (family type). There were 4/69 single parent families randomised to the study and all 4 families were randomised to waitlist with none in SPI or BPI (Fisher's Exact Test = 6.51, p = .008). However, family type could not be used as a covariate in subsequent analyses since it has greater than a 90/10 split (Tabachnick & Fidell, 2007).

Families were also randomised to participate in the videotaped parent-child interaction task and in total 36/69 (52.2%) families were randomised to participate in this task, 12 from each group. To compare families randomised to this task to those not randomised, t-test and chi-square tests were conducted across all pre-assessment measures and socio-demographic variables. There were no significant group differences between families indicating randomisation to videotaped observation task produced equivalent groups.

Attrition. Overall, the non-completion rates at post-assessment were 10.1% for mothers and 14.3% for partners. Of the 69 families randomised to the study, 62 (89.9%) mothers completed post-assessment questionnaires: 20/23 (87.0%) for SPI, 22/24 (91.7%) for BPI and 20/22 (90.9%) for WL (see Figure 2). For the 63 partners who completed pre-assessment questionnaires, 54 (85.7%) completed

questionnaires at post-assessment: 19/23 (82.6%) for SPI, 18/23 (78.3%) for BPI and 17/17 (100%) for WL. Completion rates did not differ between the groups for mothers or partners. Of the 36 families randomised to the videotaped parent-child observations, only one family (randomised to SPI) did not complete the post-assessment.

To examine differential attrition at post-assessment, a series of ANOVAs and chi-squared tests were conducted to see if mothers and partners who dropped out differed from those who remained on all pre-assessment measures and socio-demographic variables. Only one variable was significant: single parent families (50%) were more significantly likely to drop out prior to post-assessment than two parent families (7.7%) χ^2 (1, N = 69) = 7.40, p = .007. In addition, a series of 3 (group: SPI vs BPI vs WL) x 2 (completer: completers vs non-completers) ANOVAs, chi-square tests and Fisher's Exact Tests were also run across all pre-assessment measures and socio-demographic variables to examine differential attrition across groups. The only significant group by completer effect was again for family type, since there were a overrepresentation of single-parent families in the waitlist group and these families were more likely to drop out prior to post-assessment than two-parent families, Fisher's Exact Test = 5.05, p = .048.

Six months after completing the intervention, 35/42 (83.3%) of families in the two active intervention groups completed the questionnaires again: 17/20 (85.0%) from SPI and 18/22 (81.8%) from BPI. For partners, 34/37 (91.9%) completed post-assessment questionnaires: 16/19 (84.2%) for SPI and 18/18 (100%) for BPI. Rates of completion did not differ significantly between groups for mothers or partners. Of the 35 families who completed videotaped parent-child interaction at post-

assessment, only one family (from SPI) failed to complete the videotaped parent-child observation at follow-up.

To examine different attrition at 6 month follow-up a series of 3 (group: SBFI vs BBFI vs WL) x 2 (completer: completer vs non-completers) ANOVAs and chi-squared tests were conducted on the entire sample (14/69 mothers and 14/63 partners did not complete either the post-assessment or follow) to see if mothers and partners who dropped out at either post or follow-up differed from those who remained across the three groups on all pre-assessment measures and socio-demographic variables. Again with the exception of family type, analyses showed no significant chi-square tests or main effects for group, or completer, or any group by completer interactions.

Checking assumptions of the data.

***Normality*.** Prior to analyses, all pre-assessment, post-assessment and 6 month follow-up variables were examined through SPSS to check for accuracy of data entry and to examine the assumptions of univariate and multivariate analysis as specified by Tabachnick and Fidell (2007). Assumptions of normality were examined with several variables found to have significant skewness and kurtosis. Logarithmic transformations were performed on 21 variables, inverse logarithmic transformations were performed on two variables and inverse square root transformations were performed on two variables (see Appendix C for a list of the variables transformed). Analyses were run with these transformed variables, however, means and standard deviations are reported for untransformed data.

The variable observed child physical aggression (percentage of intervals child showed physical aggression in videotaped play task) showed extreme skewness and

kurtosis with a preponderance of zero values (73.1%). Since transformations could not be conducted on this variable, a dichotomous variable was created for presence/absence of physical aggression.

***Outliers*.** Examination of outliers found 11 cases had univariate outliers and two cases were identified through Mahalanobis distance (with $p < .001$) as having multivariate outliers. The transformation of variables to address non-normality adequately addressed the univariate outliers. For the multivariate outliers, analyses were again run with and without the two cases with multivariate outliers, and since deleting the cases did not alter results, these cases were retained in the final analyses.

Multicollinearity. Multicollinearity was examined by bivarate correlations between the dependent variables to be entered into the multivariate analysis of variance at post-assessment and follow-up and no correlations exceeded 0.80 (Tabachnick & Fidell, 2007).

Missing data. For the videotaped parent-child interaction task, 9/92 (9.8%) of videos were missing across the three time points due to technical failure of the clinic video recording system. One case had missing data for two time points, so video data was not analysed for this case. For the remaining 7 cases, video data was missing at one time point only (5 were missing pre-assessment videos and 2 were missing post-assessment videos). As missing data was judged to be random, group means were inserted for missing values for observed child and parent aversive behaviour (but not for observed child physical aggression since a dichotomous variable was created for this variable). However, for two additional families who were assigned to videotaped task and dropped out of the study (one at post-assessment and one at follow-up), missing data was not replaced by means. Analyses were run

with and without the mean substitution, and inserting the means for missing values did not change the pattern of findings.

4.3.3 Data analytic plan

A series of three (group: SPI vs BPI vs WL) analyses of covariance (ANCOVAs) and multivariate analyses of covariance (MANCOVAS) were conducted with post-assessment scores as the dependent variables and pre-assessment measures as covariates, as recommended by Read, Kendall, Carper and Raush (2013) for a stringent test of intervention effects in an RCT. MANCOVAs were performed for parents' reports of child behaviour (PA-SEC and CBCL aggression), dysfunctional parenting (Parenting Scale laxness, overreactivity and verbosity) and parental negative affect (DASS-21 depression, anxiety and stress). ANCOVAS were conducted for relationship satisfaction (QMI), behavioural self-efficacy (PTC), observed mothers aversive parenting and observed child aversive behaviour. Analyses were performed separately for mothers' and partners' data. Significant univariate F values were further examined by planned contrasts (*t* statistic) which compared the efficacy of SPI versus WL, BPI versus WL and SPI versus BPI, controlling for the effects of pre-assessment measures.

Since it was not possible to conduct an ANCOVA on observed child physical aggression, for reasons described above, a Fisher's Exact Test was conducted to see if the proportion of children displaying aggression during the observed parent-child interaction task differed between the conditions.

To compare differences between SPI and BPI for parents' satisfaction with the intervention and perceived demands of the intervention, *t* tests were conducted, and to examine group differences in parents' perception of whether the intervention was

too short, chi-square analyses were conducted. Finally, to examine group differences in parents' expectancy of the effectiveness of intervention at pre-intervention, a chi-square test was conducted.

Analyses of long-term (6 month follow-up) intervention effects consisted of 2 (Condition: SPI vs BPI) x 2 (Time: post-assessment and follow-up) repeated measures ANCOVAs and MANCOVAs again using pre-assessment scores as covariates (as recommended by Read et al., 2013). Planned contrasts (*t* statistics) were used to compare follow-up scores between SPI and BPI, controlling for the effects of pre-assessment measures.

For all group comparisons, effect sizes were calculated using Cohen's *d* where 0.2 was considered a small effect size, 0.5 was considered a medium effect size and 0.8 was considered a large effect size (Cohen, 1988).

4.3.4 Parent expectations

In terms of families' expectations of the effectiveness of the intervention, the majority expected that the program would be very or extremely helpful (94.2%) for them as parents, very or extremely helpful for their child's behaviour (86.9%) and that they were very or extremely motivated to attend the parenting groups (97.1%). The responses to these expectancy questions did not differ significantly based on group to which families were randomised.

4.3.5 Short-term Intervention Effects

Table 4 displays the means and standard deviations for all dependent variables at pre- and post-assessment and 6 month follow-up. For variables where significant group differences were found using MANCOVAs or ANCOVAs, Table 5 displays the univariate *F* values, *t* statistics and Cohen's *d* effect sizes for planned

contrasts between the three groups. The MANCOVA for parent reports of child aggressive behaviour revealed significant group differences for mothers F (4, 112) = 3.17, p = .017, but not for partners. Mothers in the SPI reported significantly lower levels of child aggressive behaviours than WL on both PA-SEC and CBCL aggression at post-assessment but mothers in the BPI did not differ in their reports of child aggressive behaviour from either WL or SPI, although the difference between SPI and BPI for CBCL aggression approached significance (p = .057). The MANCOVA for reports of dysfunctional parenting also showed significant group differences for mothers, F (6, 108) = 3.85, p = .002, but not for partners. Mothers in the SPI reported lower levels of overreactivity, verbosity and laxness than those in the WL at post-assessment. Mothers in the SPI also reported significantly lower levels of overreactivity and verbosity than mothers in the BPI group. Mothers in BPI reported lower levels of verbosity than mothers in WL at post-assessment as well as a trend for lower levels of laxness (p = .058).

The three-group ANCOVA for PTC behavioural self-efficacy revealed significant group differences for mothers, F (2, 61) = 5.73, p =.005, and partners, F (2, 53) = 3.38, p =.042. At post-assessment mothers in the SPI group reported significantly higher levels of behavioural self-efficacy than mothers in WL, but mothers in the BPI did not differ from SPI or WL. Partners in SPI also reported significantly higher levels of behavioural self-efficacy than partners in the WL group,

Table 4. *Means, standard deviations for child behaviour, parenting, behavioural self-efficacy, relationship satisfaction and negative affect at pre- and post-assessment and 6 month follow-up for SPI, BPI and WL groups*

	SPI			BPI			WL	
	Pre	Post	Follow-up	Pre	Post	Follow-up	Pre	Post
	M (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)
Child obs aversive	13.25 (13.43)	2.25 (2.56)	3.93 (3.75)	5.65 (6.54)	8.43 (13.76)	8.27 (13.03)	13.66 (11.31)	14.44 (16.78)
PA-SEC								
Mother	10.50 (2.52)	3.45 (2.69)	3.88 (3.22)	9.73 (2.29)	4.64 (2.82)	3.44 (2.01)	10.65 (3.44)	6.55 (4.10)
Partner	7.16 (3.67)	4.37 (2.87)	3.19 (2.66)	6.39 (3.88)	4.06 (2.65)	2.83 (2.57)	6.65 (3.10)	5.59 (3.55)
CBCL AGG								
Mother	21.90 (6.27)	11.45 (6.26)	11.47 (7.20)	21.00 (5.67)	14.41 (6.54)	11.61 (6.74)	19.10 (5.69)	17.00 (7.11)
Partner	18.47 (7.04)	12.68 (6.03)	12.75 (7.76)	17.28 (7.16)	15.00 (6.97)	12.39 (6.96)	18.41 (6.47)	16.00 (5.37)
PS VB								
Mother	3.39 (0.61)	2.65 (0.74)	2.65 (0.95)	3.36 (0.80)	3.11 (0.83)	3.24 (0.79)	3.41 (0.58)	3.60 (0.50)
Partner	3.51 (0.64)	3.23 (0.67)	3.11 (0.98)	3.81 (0.67)	3.77 (0.49)	3.91 (0.58)	2.72 (0.70)	3.52 (0.65)
PS LX								
Mother	3.02 (1.09)	2.20 (0.69)	2.25 (0.77)	2.97 (0.93)	2.39 (0.66)	2.29 (0.51)	2.64 (0.58)	2.71 (0.64)
Partner	2.92 (0.78)	2.48 (0.63)	2.46 (0.90)	2.90 (0.54)	2.83 (0.78)	2.83 (0.53)	3.09 (0.66)	2.81 (0.61)

	SPI			BPI			WL	
	Pre	Post	Follow-up	Pre	Post	Follow-up	Pre	Post
	M (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)
PS OR								
Mother	3.29 (0.91)	2.29 (0.61)	2.50 (0.87)	3.05 (0.96)	2.70 (0.73)	2.86 (0.73)	2.97 (0.71)	2.92 (0.93)
Partner	2.66 (0.60)	2.54 (0.81)	2.69 (0.88)	2.94 (0.89)	2.84 (0.88)	2.97 (0.80)	2.72 (0.70)	2.74 (0.88)
Parent obs								
aversive	2.45 (4.31)	1.25 (1.76)	1.75 (3.10)	2.04 (4.41)	1.09 (1.56)	1.59 (2.12)	2.37 (2.64)	5.62 (8.78)
PTC-B								
Mother	62.90 (24.13)	81.54 (17.75)	84.12 (11.32)	65.43 (17.35)	75.58 (16.27)	79.69 (14.47)	65.21 (12.62)	66.82 (19.27)
Partner	72.39 (22.44)	83.33 (9.02)	81.83 (12.32)	77.62 (8.93)	76.23 (12.20)	81.18 (13.39)	76.32 (12.04)	74.16 (15.69)
QMI								
Mother	37.45 (6.43)	38.10 (5.09)	38.59 (3.48)	34.50 (5.39)	36.29 (4.72)	35.83 (5.95)	35.83 (5.36)	35.44 (5.83)
Partner	38.79 (5.43)	38.63(4.55)	39.44 (3.96)	37.06 (4.61)	35.89 (5.62)	36.72 (5.25)	36.41 (8.86)	37.41 (5.39)
DASS21-D								
Mother	6.20 (7.62)	3.10 (7.96)	1.60 (1.55)	8.27 (10.09)	4.19 (3.74)	2.59 (3.13)	6.90 (6.07)	6.10 (5.29)
Partner	4.95 (6.94)	2.53 (4.98)	2.38 (7.42)	4.78 (5.87)	3.89 (5.55)	4.78 (6.18)	5.29 (5.24)	4.94 (5.44)
DASS21- A								
Mother	2.80 (5.85)	2.60 (8.03)	1.25 (1.77)	6.27 (9.08)	2.57 (3.64)	2.44 (3.67)	5.00 (5.25)	4.20 (6.58)
Partner	2.21(3.26)	1.79 (2.49)	0.88 (2.06)	2.89 (4.01)	2.89 (3.95)	1.78 (3.14)	1.76 (2.64)	1.65 (2.37)

	SPI			BPI			WL	
	Pre	Post	Follow-up	Pre	Post	Follow-up	Pre	Post
	M (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)
DASS21- S								
Mother	12.40 (10.48)	8.40 (8.91)	6.25 (5.26)	17.36 (10.93)	11.62 (6.56)	8.11 (7.47)	14.52 (8.87)	14.20 (8.87)
Partner	10.00 (7.86)	8.53 (7.18)	6.38 (5.85)	11.44 (8.70)	7.67 (7.33)	7.44 (7.69)	9.29 (6.93)	8.35 (7.85)

Note. SPI = Standard Parenting Intervention; BPI = Brief Parenting Intervention; WL = waitlist; Pre = Pre-assessment; Post = Post-assessment; Follow-up = 6 month follow-up; Child obs aversive = Percentage of intervals child displayed aversive behaviour in parent-child interaction task; PA-SEC = Physical Aggression Scale for Early Childhood; CBCL AGG= Child Behaviour Checklist Aggressive Behaviour scale; PS = Parenting Scale; VB = Verbosity; LX = Laxness, OR = Overreactivity; Parent obs aversive = Percentage of intervals parent displayed aversive behaviour in the parent-child interaction task; PTC-B = Parenting Task Checklist Behavioural Self-Efficacy Scale; QMI = Quality of Marriage Index; DASS21-D = Depression Scale from DASS21; DASS21-A = Anxiety Scale from DASS21; DASS21-S = Stress Scale from DASS-21.

Table 5. *F values, t statistics and effect sizes for significant short-term intervention effects*

Measure	3 group ANCOVA	SPI vs WL		BPI vs WL		SPI vs BPI	
	F	*t*	*D*	*t*	*d*	*t*	*D*
Child observed aversive[§]	3.88*	-0.57**	-1.02	-0.22	-0.39	-0.34	-0.62
Mo PA-SEC	5.23**	-3.34**	-0.89	-1.74	-0.54	-1.59	-0.43
Mo CBCL AGG	6.15**	-6.33**	-0.82	-2.64	-0.38	-3.69[1]	-0.45
Mo PS LX	4.06*	-0.58**	-0.77	-0.39[1]	-0.49	-0.19	-0.28
Mo PS OR[§]	8.86***	-0.09***	-0.80	-0.03	-0.61	-0.07**	-0.26
Mo PS VB	10.01***	-0.97***	-1.50	-0.46*	-0.72	-0.51*	-0.59
Mo PTC-B[§]	5.73**	-1.70**	0.79	0.84	0.49	0.86	0.35
Partner PTC-B[§]	3.38*	9.49*	0.71	1.97	0.14	7.52[1]	0.66

Note. ANCOVA = Analysis of covariance; SPI = Standard Parenting Intervention; BPI = Brief Parenting Intervention; WL = waitlist; Mo = mother; PA-SEC = Physical Aggression Scale for Early Childhood; CBCL AGG= Child Behaviour Checklist Aggressive Behaviour Scale; PS = Parenting Scale; LX = Laxness; OR = Overreactivity; VB = Verbosity; PTC-B = Parenting Task Checklist Behavioural Self-Efficacy Scale.

[§] analysis conducted on transformed variable

*p<.05, **p<.01, ***p<.001; [1] p = 0.06

and there was a trend for partners in SPI to report significantly higher behavioural self-efficacy than BPI (p = .056), but partners in BPI did not differ from WL.
The MANCOVA for parental negative affect (DASS-21) did not show significant group differences for mothers or partners. Similarly, the ANCOVA for satisfaction with parental relationship (QMI) did not show significant group differences for mothers or partners.

The three-group ANCOVA for observed child aversive behaviour revealed significant group differences at post-assessment, F (2, 33) = 3.88, p =.032, with the SPI group showing significantly lower percentage of aversive behaviour at post-assessment relative to the waitlist group. There were no differences between BPI and WL or between SPI and WL on observed child aversive behaviour. It should be noted that both the WL and the BPI showed an increase from pre- to post-assessment in mean levels of proportion of child aversive behaviour. The ANCOVA examining observed parent aversive behaviour revealed no statistically significant group effects.

Fisher's Exact Test was conducted to see if the proportion of children displaying aggression during the observed parent-child interaction task differed between the conditions. For this analysis, only cases that had complete data at pre-assessment and post-assessment were used (n = 27). Table 6 displays the numbers and percentages of children showing physical aggression in each of the intervention groups at pre- and post-assessment and 6 month follow-up. Across the three groups, only 7/27 (25.9%) children displayed physical aggression in the parent-child interaction task at pre-assessment. There were no significant group differences between the proportions of children displaying aggression at post-assessment.

Table 6. *Number and percentage of children displaying physical aggression in observed parent-child interaction task at pre-assessment, post-assessment and 6 month follow-up*

	SPI		BPI		WL	
	n/n	%	n/n	%	n/n	%
Pre-assessment	3/9	33.3	3/8	37.5	1/10	10.0
Post-assessment	0/9	0.0	0/8	0.0	3/10	30.0
6 month follow-up	0/8[1]	0.0	0/8	0.0		

Note. Analysis only conducted on cases with complete observations at pre- and post-assessment. SPI n = 9; BPI n = 8; WL n = 10. SPI = Standard Parenting Intervention; BPI = Brief Parenting Intervention; WL = waitlist

[1] one family in the SPI assigned to the playtask dropped out at 6 month follow-up

For the measure of satisfaction with the intervention (CSQ), mothers in the SPI (*M* = 77.20, *SD* = 11.91) reported significantly higher satisfaction with the intervention than mothers in the BPI (*M* = 68.10, *SD* = 11.21), *t* (39) = 2.52, *p* = 0.016. Similarly partners in the SPI (*M* = 74.40, *SD* = 8.98) reported significantly greater satisfaction with the intervention than partners in the BPI group (*M* = 61.18, *SD* = 8.93), *t* (30) = 4.17, *p* = .000. In relation to perceived demands of intervention, mothers who received the SPI (*M* = 13.10, *SD* = 2.65) rated the intervention as significantly more demanding than those who received the BPI (*M* = 10.38, *SD* = 2.16), *t* (39) = 3.61, *p* = .001. However, partners who received the SPI (*M* = 10.87, *SD* = 2.03) did not differ significantly from partners in the BPI (*M* = 10.81, *SD* = 3.06)

in their ratings of whether the intervention was demanding. In terms of parents' perception of whether the intervention was too short, 6 (30.0%) mothers in SPI rated the intervention as too short in comparison with 13 (61.9%) in the BPI, and this difference approached significance, χ^2 (1, N = 41) = 4.19, p = .060. However, partners in the SPI vs BPI did not differ significantly in their ratings of the intervention being too short (26.7% vs 52.9% respectively).

Clinical significance of change. Two criteria were used to assess the clinical significance of change. Firstly, the Reliable Change Index, which is change greater than 1.96 Standard Error of Measurement between pre- and post-assessment (Jacobson & Truax, 1991), was calculated for PA-SEC, CBCL aggression and mothers' Parenting Scale laxness, overreactivity and verbosity. These variables were selected to because they are the most clinically important measures of outcomes for child behaviour and dysfunctional parenting. Secondly, the proportion of children who moved from the clinical/borderline clinical range on CBCL aggression at pre-intervention to the normal range at post-intervention was calculated (the PA-SEC was not used since there are no clinical cut-offs established for this measure). The proportion of children showing deterioration (movement from the normal range at pre-assessment to borderline/clinical range at post-assessment) was also calculated. The number and proportions of children and parents showing clinically significant change according to these criteria are detailed in Table 7 along with the chi-square analysis for group comparisons between SPI versus WL, BPI versus WL, and SPI versus BPI.

At post-assessment, significantly more children in SPI showed reliable change according to mothers' reports on CBCL aggression (but not PA-SEC) than WL. Similarly, more mothers in the SPI showed reliable change on Parenting Scale

Table 7. *Clinical significance of change from pre-assessment to post-assessment and pairwise comparisons between groups*

	SPI		BPI		WL		Contrasts, χ^2		
Measure	n/n	%	n/n	%	n/n	%	SPI vs WL	BPI vs WL	SPI vs BPI
RCI >1.96									
PA-SEC	16/20	80.0%	13/22	59.1%	10/20	50.0%	3.96	0.35	2.14
CBCL AGG	18/20	90.0%	12/22	54.5%	5/20	25.0%	17.29**	3.80	6.45*
PS LX	9/20	45.0%	6/22	27.3%	0/20	0.0%	11.61**	6.36*	1.43
PS OR	10/20	50.0%	4/22	18.2%	2/20	10.0%	7.62*	0.57	4.77*
PS VB	8/20	40.0%	6/22	27.3%	0/20	0.0%	10.00**	6.36*	0.76
Normal range									
CBCL AGG[1]	11/11	100.0%	9/12	75.0%	4/8	50.0%	6.97*	1.32	3.16
Deterioration[2]	1/20	0.50%	3/22	13.6%	2/20	10.0%	0.36	0.13	0.91

SPI = Standard Parenting Intervention; BPI = Brief Parenting Intervention; WL = Waitlist; RCI = Reliable Change Index; PA-SEC = Physical Aggression Scale for Early Childhood; CBCL AGG = Child Behaviour Checklist Aggressive Behaviour Scale; PS = Parenting Scale; LX = Laxness; VB = Verbosity; OR = Overreactivity.

*p<.05, **p<.01, ***p<.001

[1]Out of proportion of children who scored in the borderline or clinical range at pre-assessment

[2] Deterioration refers to children in the normal range at pre-assessment who were in the borderline or clinical range at post-assessment.

laxness, overreactivity and verbosity than mothers in WL. Significantly more mothers who received BPI reported reliable change on laxness and verbosity than mothers in WL and more mothers in SPI reported reliable change on CBCL aggression and PS overreactivity than mothers in BPI. In terms of movement from the clinical/borderline clinical range to normal range on CBCL aggression, a significantly greater proportion of children moved to normal range in SPI versus WL, but proportions did not differ for BPI versus WL or for SPI versus WL. The proportion of cases showing deterioration from pre- to post-assessment on CBCL aggression also did not differ significantly between groups.

Equivalency testing. In order to examine the equivalency between the SPI and BPI at post-assessment we used the approach described by Rogers, Howard and Vessey (1993) which has also been adopted by other researchers examining equivalency in parenting interventions (Nixon, Sweeney, Erickson & Touyz, 2003). In this approach, a pre-determined difference value (equivalence interval) is defined as a difference between interventions that is considered to be clinically unimportant and then the null hypothesis is tested. Equivalency is demonstrated when the null hypothesis is rejected in favour of the alternative hypothesis (that the difference between the two means is equal to or larger than the specified difference). Following the definition of equivalence used by Nixon et al. (2003), the two interventions would be considered comparable if the mean score of the BPI group fell within one standard deviation of the SPI group. The same measures that were used to test for clinically significant change were examined to determine equivalency between the SPI and BPI.

At post-assessment, mothers' report of child behaviour on both PA-SEC and CBCL aggression were equivalent between the SPI and BPI ($z = 1.76$, $p < .05$; $z =$

-1.67, p <.05). Mothers' ratings of laxness were also found to be equivalent (z = -2.38, p <.01), but mothers' ratings of verbosity and overreactivity were not found to be equivalent between SPI and BPI. These findings confirm the results obtained through statistical testing via MANCOVAs and ANCOVAs.

Intent-to-treat analyses. Intent-to-treat analyses were also conducted for measures with a significant group effects. A second series of MANCOVAs and ANCOVAs was conducted with pre-intervention scores inserted at post-intervention for families who failed to complete post-assessment. Significant effects remained for mothers' measures of dysfunctional parenting and mothers' and partners' behavioural self-efficacy. However, for mothers' reports of child behaviour (PA-SEC and CBCL aggression), the effect for group was no longer significant in the MANCOVA.

4.3.6 Long-term intervention Effects.

At 6 month follow-up, repeated measures MANCOVAs and ANCOVAs were performed to examine significant group by time interactions, main effects for time, or main effects for group. As the WL group was not included at follow-up, only the BPI and SPI groups were included in these analyses. No significant effects emerged for any of the measures rated by mothers or for fathers, demonstrating that the intervention effects from post to follow-up (at least for mothers) appeared to have been maintained over time.

Clinical significance of change. Table 8 displays the frequency and percentage of children who made clinical significant changes between pre-assessment and 6-month follow up. Comparisons between SPI and BPI showed that there were no significant group differences in proportion of children who

Table 8. *Clinical significance of change from pre-assessment to 6 month follow-up and contrasts between SPI and BPI*

Measure	SPI		BPI		Contrasts χ^2
	n/n	%	n/n	%	SPI vs BPI
RCI >1.96					
PA-SEC	12/17	70.1%	10/18	55.6%	0.85
CBCL AGG	13/17	76.5%	12/18	66.7%	0.41
PS LX	5/17	29.4%	3/18	16.7%	0.81
PS OR	4/17	23.5%	2/18	11.1%	0.95
PS VB	6/17	35.3%	4/18	22.2%	0.73
Movement to norm range CBCL AGG[1]	8/9	88.9%	8/10	80.0%	0.28

Note. SPI = Standard Parenting Intervention; BPI = Brief Parenting Intervention; WL = waitlist; RCI = Reliable Change Index; PA-SEC = Physical Aggression Scale for Early Childhood; CBCL AGG = Child Behaviour Checklist Aggressive Behaviour Scale; PS = Parenting Scale; LX = Laxness; VB = Verbosity; OR = Overreactivity.

[1]Out of proportion of children who scored in the borderline or clinical range at pre-assessment

demonstrated reliable change according to mothers' reports on PA-SEC, CBCL aggression or for mothers' ratings of overreactivity, laxness and verbosity. There were also no significant differences between the SPI and BPI in the proportion of children who moved from the clinical/borderline clinical range on CBCL aggression at pre-intervention to the non-clinical range at follow-up. Only one case was in the clinical/borderline clinical range at 6 month follow-up in SPI and two cases in BPI. No cases showed deterioration from pre-assessment to follow-up (that is, moved from normal range at pre-assessment to clinical/borderline clinical range at 6 month follow-up).

Equivalency testing at follow-up. The SPI and BPI was compared for equivalency at 6 month follow-up using the same procedure described earlier to test equivalence at post-assessment. At follow-up, mothers' report of child behaviour on both PA-SEC and CBCL aggression were equivalent between the SPI and BPI (z = -3.16, p < .001; z = -3.05, p <.01 respectively). Mothers' ratings of laxness and overreactivty were also found to be equivalent (z = -3.32, p <.001; z = -1.89 p <.05 respectively), but mothers' ratings of verbosity were not found to be equivalent.

4.4 Discussion

This RCT aimed to examine the relative efficacy of a standard (8 session) parenting intervention with a brief (3 session) intervention and a waitlist control group, in terms of impact on toddler physical aggression and externalising behaviours, dysfunctional discipline and related aspects of parent functioning, in both the short- and longer-term. Overall, the findings from this study suggest that for mothers, SPI has a greater impact on short-term outcomes than BPI, but in the longer-term these group differences were no longer apparent, and the BPI showed equivalent outcomes to the SPI. For partners, no group differences emerged (with the exception of behavioural self-efficacy) which suggested that neither the SPI nor BPI improved partners' ratings of child behaviour or dysfunctional parenting at post-assessment or follow-up.

The findings of the study did not support Hypothesis 1, that both the SPI and BPI would be superior to WL in terms of outcomes for children and families at post-assessment. While there was significant differences between SPI and WL for eight outcomes at post-assessment (across mothers' ratings of child aggressive and externalising behaviour, dysfunctional parenting, parenting self-efficacy and

observed child aversive behaviour), only one significant difference emerged between BPI and WL for mothers' ratings of verbosity, although laxness also approached significance. Contrary to expectation that SPI and BPI would not differ significantly from one another (Hypothesis 1), significant differences emerged between SPI and BPI for two measures, mothers' verbosity and overreactivity – and group differences also approached significance for two additional measures. The findings regarding clinical significance of change showed a similar pattern of results with a greater proportion of cases with reliable change on mother-rated child aggressive behaviour and overreacitivty in the SPI compared with BPI.

The findings in relation to Hypothesis 1 support the conclusion that abbreviating a standard parenting intervention appears to reduce its efficacy, at least in the short-term. There are a number of potential reasons for this finding, such as the fewer parenting strategies covered in the brief versus standard intervention (see Table 3 in Chapter 4), the lack of time available for active skills training (such as roleplay, rehearsal and feedback on skills), or simply the briefer duration of the BPI overall. It may also be a consequence of parents' satisfaction with the intervention, since both mothers and fathers who received SPI rated their satisfaction with the intervention as significantly higher than mothers and fathers who received the BPI. These possible explanations for the findings are discussed further in Chapter 5.

Despite the findings showing greater short-term effects of SPI compared with BPI, medium effect sizes emerged for the BPI at post-assessment relative to WL across measures of child behaviour and dysfunctional parenting according to mothers' reports, indicating that the effects of the brief intervention are not inconsequential. As well as the significant group differences between BPI and WL on

mothers' verbosity, a significantly greater number of mothers in BPI showed reliable change from pre- to post-assessment for ratings of laxness and verbosity relative to WL. This finding suggests that the BPI is effective in changing some aspects of dysfunctional parenting, in spite of the fact it was only 2 hours and 36 minutes in duration (on average). It should be noted that as this study was underpowered to detect a medium effect size, it was limited in its ability to detect statistically significant differences between BPI and WL at post-assessment. With a larger sample size, more statistically significant differences between BPI and WL may have emerged.

In relation to parent psychosocial measures, there were no significant group differences at post-assessment for ratings of relationship satisfaction and parental negative affect, although significant differences in behavioural self-efficacy emerged between SPI and WL for mother and partners. The average pre-assessment ratings for relationship satisfaction were generally high and ratings of negative affect were generally low, which may have resulted in a difficulty to detect group differences on these variables at post-assessment. However, it also appears that parenting interventions have much smaller impacts on these more distal risk factors for child externalising behaviour, when compared to more proximal risk factors such as dysfunctional parenting (Barlow et al., 2012)

The findings of the study provided some support for Hypothesis 2, in that there were no significant differences between SPI and BPI by 6 month follow-up across any measure, according to mothers' and fathers' ratings or observed measures. The SPI and BPI also did not differ significantly in proportions of cases showing clinically significant change on child behaviour and parenting at follow-up. This finding suggests the effects of the BPI may have strengthened over the time

between post-assessment and follow-up, at least for mothers. However, given that there was no waitlist group at follow-up to allow comparisons to an untreated group, and again due to the small sample sizes in the study, conclusions regarding the long-term effects of the BPI relative to SPI remain tentative.

Since only one group difference emerged for partners' ratings at post-assessment (between SPI and WL on behavioural self-efficacy), the findings for partners suggest that neither SPI nor BPI has significant impacts on child externalising and aggressive behaviour or dysfunctional parenting in the short- or longer-term. This finding supports three meta-analytic reviews which concluded that parenting interventions are less effective for fathers than mothers (Fletcher, Freeman & Matthey, 2011; Nowak & Heinrichs, 2008; Wilson et al., 2012), although these reviews still found a significant impact on father-rated child externalising behaviour and parenting. There are a number of reasons why parenting interventions may be less effective for fathers than mothers, and these are reviewed in detail in the next Chapter.

Chapter 5 presents a more detailed overall discussion of the findings of this study along with the implications for clinical practice and the directions for future research.

4.5 Conclusions

The findings of this RCT showed that the brief parenting intervention was not as effective in the short-term as the standard intervention in changing child externalising and aggressive behaviour, dysfunctional parenting and parenting self-efficacy, however the effects appeared to be equivalent in the longer-term, at least for mothers. For fathers, there was an overall pattern of non-significant effects at

post-assessment and follow-up, suggesting that these parenting interventions are less effective for fathers than for mothers. While it was not as effective as the longer intervention, the brief parenting intervention resulted in significantly lower levels of mothers' dysfunctional parenting, relative to the waitlist in the short-term. In addition, the medium effect sizes found for the brief intervention relative to the waitlist were similar to effect sizes reported for longer parenting interventions within the literature, suggesting that the effects of the brief intervention may be not be inconsequential, and pointing to the need for further research with adequately powered studies. Chapter 5 will include an in-depth discussion of the findings of this study along with the implications for clinical practice, the limitations of this research and the directions for future research.

CHAPTER 5

GENERAL DISCUSSION

The focus of this thesis was on extending the reach and impact of parenting interventions for externalising and aggressive behaviour in toddlers. Childhood externalising behaviour problems and DBDs are associated with significant impairments in children's social, emotional and educational functioning (e.g., Campbell et al., 2006; Moilanen & Shaw, 2010) as well as poor long term outcomes such as school dropout, poor physical health and adult psychiatric disorder (Colman et al., 2009; Fergusson, Horwood & Ridder, 2005; Odgers et al., 2007, 2008). As outlined in Chapter 1, childhood physical aggression is a key feature of DBDs, and although common in the toddler years, research also indicates that developmentally excessive aggression is significantly stable from a young age (Côté et al., 2006). Longitudinal research has demonstrated that chronic aggression is a more important predictor of poor outcomes, including violent and non-violent offending and poor academic performance, when compared with other stable externalising problems such as oppositional and hyperactive behaviours (Broidy et al., 2003; Campbell et al., 2006; Nagin & Tremblay, 1999; Pingault et al., 2013). Overall, research suggests that efforts to prevent violence should focus on high risk children during the toddler years, as this is the developmental period when children are learning alternatives to physical aggression and parents may be more receptive to interventions. Since treatment of aggression becomes more difficult and costly as children grow older, intervention during the toddler years is likely to be more effective as well as more cost-effective (Webster-Stratton, 2005).

As reviewed in Chapter 1, one of the key modifiable risk factors for child externalising behaviour is dysfunctional parenting, which includes overreactive, lax, verbose and inconsistent parenting. Parenting interventions based on social learning and cognitive behavioural theories target dysfunctional parenting in order to reduce childhood externalising behaviours. There has been significant research over the last 30 years to show that these parenting interventions are effective in both the short- and longer-term, in reducing dysfunctional parenting, child externalising behaviours and in increasing parental self-efficacy. Triple P – Positive Parenting Program (Sanders, 1999) is an evidence-based parenting program which has been the focus of over 140 outcomes studies (Sanders, 2012). Despite the significant evidence to support the efficacy of parenting interventions such as Triple P, the public health benefit of these interventions is limited by low participation rates, high attrition and the lack of implementation by a wide range of practitioners, which may be due to the lengthy duration of these interventions. Brief parenting interventions, delivered as part of a stepped-care model, have the potential to extend the reach and impact of parenting interventions and steer children away from a trajectory of life course persistent behaviour problems. Since there is evidence that brief parenting interventions are already being implemented in practice in order to cope with excessive demand for child mental health services (Perkins, 2006), there is a clear need to examine the efficacy and effectiveness of brief parenting interventions.

5.1 Findings from the systematic review

In order to examine the existing evidence for brief individual or group parenting interventions, a systematic review was conducted and is described in Chapter 3. The aim of this study was to review the evidence for the efficacy and

effectiveness of brief parenting interventions, defined as less than 8 sessions in duration, in modifying child externalising behaviours, dysfunctional parenting, parental mental health problems, parental self-efficacy and satisfaction with the partner relationship. The heterogeneity of included studies prevented a meta-analysis from being undertaken, but characteristics of the studies and the findings were described in a narrative review. The review identified six papers summarising the results of five studies with 557 families in three countries that met inclusion criteria. Across all studies, the brief interventions resulted in significantly improved outcomes at post-assessment for parent-rated child externalising behaviours, parenting skills and parenting self-efficacy, relative to control or comparison groups, with findings maintained at follow-up. Large effect sizes were found for improvements in child externalising behaviour relative to the control group for the two Triple P Discussion Group interventions, despite these interventions being only around 2 hours in duration (Joachim, Sanders & Turner, 2010; Morawska et al., 2011). Overall, the findings from this review suggest that brief parenting interventions appear to be effective in reducing parent-reported dysfunctional parenting and child externalising behaviour. However, only two studies included independent measures of child externalising behaviours, and no significant group differences emerged on these measures. In addition, a less consistent pattern of findings emerged for the measures of parental mental health and satisfaction with partner relationship so it is unclear whether brief interventions are able to modify these more distal risk factors for child externalising behaviours.

There were a number of key limitations to the research studies identified in this systematic review. The first limitation was the lack of information on fathers'

involvement in the intervention and failure to include outcomes measures for fathers. Since there is evidence that inclusion of fathers in parenting intervention may enhance the outcomes for children (Bagner & Eyberg, 2003; Lundahl, Risser & Lovejoy, 2008) but also that parenting interventions may be less effective for fathers than mothers (Fletcher, Freeman & Matthey, 2011), it is important to describe fathers' involvement in the intervention and include measures of their outcomes. The second limitation was the lack of independent measures of child externalising behaviours, such as observational measures, since parental reports of changes in child behaviour can be susceptible to bias. The third limitation pertained to the sample of children included in these studies, which were predominantly parents concerned about their child's behaviour. It is important to examine whether brief interventions are effective for children with more significant behavioural problems at baseline, especially as it is likely that brief interventions are already being implemented with clinic-referred children (Perkins, 2006). The final limitation was that none of the studies identified in the review examined a brief versus a standard parenting intervention to compare their relative efficacy. According to Bower and Gilbody (2005), in order for brief interventions to be effective when delivered as the first step in a stepped-care approach they have to produce equivalent outcomes to more intensive outcomes for at least a proportion of the participants. Thus, given this gap in the research, an RCT was conducted to compare the relative efficacy of brief and standard parenting intervention with a waitlist control group, and the findings of this RCT were presented in Chapter 4.

5.2 Findings from the RCT

Chapter 4 presented the findings of an RCT comparing the effects of an 8 session standard parenting intervention (SPI) with a 3 session brief parenting intervention (BPI) and a WL control group in the short-term (post-assessment) and longer-term (6 month follow-up). The outcome variables examined included parent-reported measures (child physical aggression and externalising behaviours, dysfunctional parenting, behavioural self-efficacy, parental relationship satisfaction and parental negative affect) and observed measures (child aversive behaviour, child physical aggression and parent aversive behaviour). Overall, the findings from this study demonstrated that the standard 8 week parenting intervention was efficacious in the short-term in reducing mother-reported child externalising and aggressive behaviours, observed child aversive behaviour, dysfunctional parenting and increasing parenting self-efficacy, with large to very large effect sizes obtained relative to the waitlist group. As reviewed in Chapter 2, while toddler aggression is an important target for early intervention, parenting interventions overwhelmingly target more general externalising behaviours. Therefore, very little is known about the effectiveness of standard parenting interventions for modifying early childhood physical aggression. Not only does this finding independently replicate previous studies demonstrating the effectiveness of this 8 week Triple P group intervention (Bodenmann et al., 2008; Leung et al., 2003; Matsumoto et al., 2007; Turner, Richards & Sanders, 2007), but also demonstrates its efficacy in modifying physical aggression in toddlers– an outcome that has not yet been examined in Triple P research.

The main aim of this research, however, was to examine the relative efficacy of brief and standard parenting interventions with respect to two specific hypotheses. Hypothesis 1 was that, at post-assessment, families in both SPI and BPI would show greater reductions compared with WL in child aggressive and externalising behaviour, dysfunctional parenting, and parental negative affect as well as greater behavioural self-efficacy and satisfaction with the partner relationship, according to both mothers' and partners' ratings, and observed measures (for child behaviour and dysfunctional parenting). It was also predicted that SPI and BPI would not differ significantly from each other in these outcomes at post-assessment. Hypothesis 2 was that by 6 month follow-up, families in the BPI would maintain post-intervention changes and would show equivalent durability in outcomes to the SPI.

The findings of the study relating to short-term effects (Hypothesis 1), long-term effects (Hypothesis 2), the clinical implications of the research, as well as the limitations of the research and directions for future research, are discussed in detail below.

5.2.1 Short-term effects of the interventions

The findings of the RCT did not support Hypothesis 1 since there was a greater number of significant findings for SPI versus WL (across 8 outcome measures) when compared to BPI versus WL (1 outcome measure). Significant group differences also emerged between SPI and BPI on 2 outcome measures (verbosity and overreactivty) according to mothers' ratings, which was contrary to expectation. There was also significantly greater reliable change on two measures of parenting (laxness and verbosity) for SPI compared with BPI. Together these findings suggest that the short-term effects of the brief and standard parenting

intervention are not equivalent and that abbreviating a standard parenting intervention reduces its efficacy, at least in the short-term. This may be a consequence of the fewer parenting strategies covered in the brief versus standard intervention (see Table 3 in Chapter 4), the lack of time available for active skills training (such as roleplay, rehearsal and feedback on skills), the briefer duration of the intervention overall, or a combination of these factors.

In terms of mechanisms or theories of change (or mediators of an intervention), previous research (reviewed in Chapter 2) suggests that changes in child behaviour come about (or are mediated) through changes in parenting skills. It may be that the brief nature of the BPI together with the lack of skills training was not sufficient to produce meaningful changes in parenting. A systematic review by Kaminiski et al. (2008) of components associated with effectiveness of parenting interventions found that requiring parents to practice parenting skills with their children in sessions led to larger effects of the intervention. The SPI did not require parents to practice the skills with their children in sessions (as children were not included in the intervention), but it did involve active skills training, with parents participating in rehearsal and roleplays of the key parenting strategies. It is possible that this active skills training is the key component needed to bring about change in parenting and child behaviour, and future brief parenting interventions should aim to include some roleplays where possible. The greater effects for the SPI relative to the BPI may also be a consequence of families in the SPI being more satisfied with the intervention than families in the BPI, and this possibility is discussed further below.

Despite the findings showing greater short-term effects of SPI compared with BPI, there were significant group differences between BPI and WL on mothers'

verbosity and a significantly greater number of mothers in BPI showed reliable change from pre- to post-assessment for ratings of laxness and verbosity relative to WL. This suggests the BPI has significant impacts on some aspects of dysfunctional parenting, according to mother-reports. This study found smaller effect sizes for the 3 session Parent Discussion Group examined in the present study when compared to previous studies on Triple P Discussion groups (Joachim, Sanders & Turner, 2010; Morawska et al., 2011) in which large effect sizes were found. These previous studies examined interventions that were similar in format to the current one although addressed different topics (noncompliance and problems with shopping). The smaller effects found may be a consequence of the more clinically severe behaviours of children in the present study. Children were included in the present study if they demonstrated frequent aggressive behaviours, while previous research recruited parents who simply expressed concerns about their child's behaviour (Joachim, Sanders & Turner, 2010; Morawska et al., 2011). However, the proportion of children in the clinical range at pre-assessment in the present study (51%) was similar to, or less than, that reported by previous studies (50% reported by Joachim, Sanders and Turner, 2010; 75% reported by Morawska et al., 2011). Thus, it does not appear that the present study recruited a more clinically severe sample, although the different measures used in previous studies make direct comparisons of the samples difficult. An alternative explanation may lie in the nature of the physically aggressive behaviours displayed by children in the present study. Since there is evidence that physical aggression is more stable than non-aggressive externalising behaviours (Stanger, Achenbach & Velhurst, 1997), it may be that more intensive parenting interventions are needed to bring about change in these chronic behaviours. While there is a general assumption that brief interventions are best

restricted to parents and children at low to moderate level of difficulty (Sanders, 2008), there is currently no research to support or reject this assumption. Future research should examine the characteristics of families and children that moderate or predictor change in an effort to determine who does and does not benefit from brief parenting interventions.

While the effects of the brief intervention on parenting and child behaviour (relative to waitlist) in the present study were smaller than found previously for brief interventions, they were not inconsequential and still have the potential for significant population impacts and to extend the reach and influence of parenting interventions. As noted by Bower & Gilbody (2005, p 14): "a modestly effective treatment that could be used with a large number of patients might provide more population health benefit than a more effective treatment that could only be provided to a small proportion of the population". Despite the fact that the brief intervention was only 2 hours and 36 minutes (on average) in duration, medium effects sizes were found for differences between BPI and WL for child behaviour and parenting (ranging from 0.39 to 0.72) and these compare favourably to the effect sizes found for Triple P interventions in meta-analytic reviews. For example, Nowak & Heinrichs (2008) reported effect sizes for group differences for parenting and child behaviour ranging between 0.35 to 0.48 and de Graaf (2008b) reported average effect size of 0.42 and 0.54 for child behaviour and dysfunctional parenting at post-assessment. As these reviews include longer Triple P interventions, the effects of the brief intervention may in fact be comparable to typical more intensive parenting interventions. Since the present study was underpowered to detect medium effects between BPI and WL at post-assessment, it highlights the need for larger sample sizes for future research on

brief parenting interventions. The sample of 69 families in the present study took almost two years to recruit, demonstrating the very real challenges of recruiting clinical samples to intervention studies.

Observed outcomes. The findings of the study in relation to observed measures did not support Hypothesis 1 that the SPI and BPI would show significantly lower levels of observed child externalising behaviours (coded as 'child aversive behaviour'), child aggressive behaviours and dysfunctional parenting (coded as 'aversive parenting') at post-assessment relative to WL. Given the very small sample of families for whom observational data was available, the findings regarding observed measures should be treated with caution. While there were no significant group differences in observed child physical aggression or aversive parenting at post-assessment, significant differences emerged for child aversive behaviour. At post-assessment, children in the SPI showed significantly lower levels of aversive behaviour relative to WL, but did not differ from BPI, and nor did BPI differ from WL. However, an inspection of means for children in the BPI group showed that the percentage of aversive behaviour actually increased slightly from pre- to post-assessment. This increase in aversive child behaviour for the BPI was not supported by the findings of the parent-report data, and is likely to be a consequence of the low levels of observed aversive child behaviour at pre-assessment for BPI (5.65%) relative to SPI (13.25%) and WL (13.66%), although these differences were not statistically significant. The videotaped parent-child interaction task was only obtained on a random 52% of the sample in the current study and there was an additional 10% loss of data due to technical problems. Thus, the small subsample of observational data may have led to non-representativeness

of the families which may explain the low levels of aversive behaviour for the BPI at pre-assessment. It is also important to highlight that the small samples of observational data also greatly reduced the power to detect significant differences between the groups. Notwithstanding these possible explanations for the increase in aversive behaviour for the BPI from pre- to post-assessment, it is important for future research on brief parenting interventions to include observational measure to examine changes over time.

Across the sample recruited for the study, the overall rates of observed aversive child behaviour at pre-assessment were relatively low, and the rates of physical aggression were almost negligible; less than one-third (25.9%) of children had an instance of physical aggression coded at pre-assessment. Again, this may be due to the small sub-sample of families included in the videotaped observation. However, previous research using observational data has also demonstrated low base rates of child aggressive behaviour for children who are reported by parents to display frequent aggression (Wakschlag et al., 2007), indicating that videotaped observations may be unlikely to capture typical child behaviour problems.

No significant group differences emerged at post-assessment for observed aversive parent behaviour in the interaction task, and again the rates of aversive parenting were low. These findings are not consistent with the significant group differences that emerged for mother-rated dysfunctional discipline at post-assessment (discussed further below). A post-hoc examination of correlations between observed aversive parenting and self-reported dysfunctional discipline in the present study revealed that correlations were low and non-significant (r = 0.12 to 0.24). This finding may be because the parent-child interaction task captured parent

behaviour on a single occasion, whereas the self-report measures required the parent to reflect on their behaviour over time and across various situations (Morawska et al., in preparation). A previous study with at-risk toddlers also found low rates of aversive parent behaviour at pre-assessment and low correlations with parent-report measures dysfunctional discipline (Morawska & Sanders, 2006) which points to the need to examine further the setting for observational tasks as well as the coding system. In relation to the setting, the home versus clinic setting may result in more naturalistic parent and child behaviour and less socially desirable behaviours (see Hawes, Dadds & Pasalich, 2013 for review). In addition, the microanalytic coding system used in the present study (FOS; Sanders, Waugh, Tully & Hynes, 1996) may not have adequately captured all types of dysfunctional parenting. While the aversive parent behaviour codes were likely to capture overreactivity, there were no specific codes to assess laxness, verbosity or inconsistency. It may be that global codes, in which certain parenting behaviours (e.g., laxness) are defined and recorded for the overall observation, are more likely to capture the parenting behaviours of interest when compared to microanalytic codes (Morawska et al., in preparation), and these global codes should be examined further in future research.

Mother-rated outcomes. In terms of impact on mother-rated dysfunctional parenting, the SPI reported significantly lower levels than WL at post-assessment across all three measures, as well as lower levels than BPI on two measures. The BPI also reported lower levels of verbosity than WL, and effects for laxness approached significance. As previous research has demonstrated that the mechanism by which parenting interventions reduce child externalising behaviour is through reductions in dysfunctional parenting (e.g., Beauchaine, Webster-Stratton &

Reid, 2005; Brotman et al., 2009, Dishion et al., 2008; Gardner et al., 2010), we may have expected that significant differences found between SPI and BPI in dysfunctional parenting at post-assessment would have translated into significant differences in child externalising behaviours, yet the SPI and BPI were found to be statistically equivalent on these measures at post-assessment. However, the SPI showed a significantly greater number of cases with reliable change than BPI (90.0% vs 54.5%) on mother-rated physical aggression at post-assessment, so the findings regarding the differences between SPI and BPI are somewhat mixed.

It is important to highlight that the significant group differences in child behaviour according to mothers' ratings at post-assessment were no longer apparent when a stringent intent-to-treat (ITT) analysis was conducted. The purpose of ITT analysis is to control statistically for drop out from intervention which may bias the results of the study. However, there is debate around ITT analysis given that it may lead to an extremely conservative estimate of the magnitude of the effects of the intervention (Moncur & Larmer, 2009). There are other possible methods of managing missing data in ITT analysis other than last observation carried forward, such as multiple imputation or mixed-effects models (see Kendall, Comer & Chow, 2013 for review). Different methods of ITT analysis can produce difference effects and since these alternative analyses were not conducted in the present study, it is not possible to know what impact missing data had on the findings. Thus, it remains possible that the significant overall effects for child behaviour at post-assessment was influenced by drop out from pre- to post-assessment, rather than the effects of the SPI.

It should also be noted that the parent-reported measures used to assess child externalising and aggressive behaviour in this study suffered from limitations which may have reduced their sensitivity to detect significant group differences. The PA-SEC (Alink et al., 2006) has not yet been examined in research with clinical samples nor has it been used as an outcome measure in intervention research, so its sensitivity to change is currently unknown. In the present study, mothers' (but not partners') ratings on the PA-SEC demonstrated poor internal consistency at pre-assessment, suggesting its psychometric properties may not be adequate. In relation to the CBCL 1.5-5 Aggressive Behaviour Scale (Achenbach & Rescorla, 2000), the majority of the items in this scale measure oppositional behaviours, so it cannot be considered to be a true measure of physical aggression. In addition, it has been suggested that the CBCL may be less sensitive to change when compared with other parent-reported measures of child externalising behaviour (Scott, 2001; Nixon et al., 2003) such as Eyberg Child Behaviour Inventory (ECBI; Eyberg & Pincus, 1999), which is the primary outcome measure used in most studies of Triple P. Scott (2001) has proposed that the ECBI may be a more sensitive measure of change than CBCL due to its 7-point (as opposed to 3-point) rating scale. In support of this, a recent meta-analysis of parenting interventions showed that use of the ECBI led to greater intervention effects on child externalising behaviours when compared with other measures like CBCL (Menting, de Castro & Matthys, 2013). However, the ECBI is measure of general externalising behaviour and does not include an aggression scale so it is also not appropriate for use in research on childhood physical aggression. Longitudinal studies of the trajectories of childhood aggression have tended to use very brief 3-item measures (e.g., Tremblay et al., 2004), which are also unlikely to be sensitive to change in intervention research. Further research

should aim to investigate the psychometric properties of existing measures of parent-reported physical aggression (such as PA-SEC) or develop new measures, to ensure that changes in physical aggression can be assessed accurately within intervention research.

In relation to mother-reported measures of psychosocial outcomes, there were no significant group differences at post-assessment for ratings of parental relationship satisfaction and negative affect, although significant differences emerged between SPI and BPI for behavioural self-efficacy. A meta-analytic review found that parenting interventions can result in significant short-term improvements in psychosocial outcomes such relationship satisfaction and negative affect, even if they are not directed targeted in the intervention (Barlow et al., 2012). In the current study, average pre-assessment scores for satisfaction with the partner relationship were generally high and ratings of negative affect were generally low, which may have resulted in a difficulty to detect group differences on these variables at post-assessment. However, it also appears that parenting interventions have much smaller impacts on these more distal risk factors for child externalising behaviour, when compared to more proximal risk factors such as dysfunctional parenting.

Partner-rated outcomes. In examining partners' ratings of outcomes in this study, a very different pattern of findings emerged when compared with mother's ratings. For the purposes of this Chapter, the terms 'partners' and 'fathers' will be used interchangeably since 61/63 partners (96.8%) who completed pre-assessment in the present study were men, and since the parenting literature refers to 'fathers' rather than 'partners'. There were no significant group differences at post-assessment for fathers' ratings, with the exception of behavioural self-efficacy where

those in the SPI showed significantly higher levels of behavioural self-efficacy at post-assessment than those in WL. Previous research has found that parenting competence/self-efficacy is strongly related to parenting practices, and the use of harsh or lax discipline (Coleman & Karraker, 1998; Sanders & Woolley, 2005). One study also found that changes in parenting competence mediated changes in dysfunctional parenting (Dekovic et al., 2010) although this was a volunteer home visiting intervention and not one based on social learning theory. We may have expected that the greater behavioural self-efficacy for fathers in SPI to translate into greater improvements in dysfunctional parenting, relative to BPI, but this was not the case. A meta-analytic review on fathers' outcomes from parenting interventions did not find effects on parenting competence in the short-term (Barlow et al., 2012). However, given only four studies have examined parenting competence in fathers there is a clear need to conduct further research.

The failure to find significant differences between the two active interventions and WL on father-rated measures of child behaviour and dysfunctional parenting was contrary to Hypothesis 1. Meta-analytic reviews on the effects of Triple P for fathers have found significant effects on child behaviour and parenting (Fletcher, Freeman & Matthey, 201, Nowak & Heinrchs, 2008), although a previous study of the 8 week intervention used in the present study also found minimal group differences for fathers over one year (Bodenmann et al., 2008).

Examination of pre-assessment means revealed that partners scored lower than mothers on measures of child externalising behaviour which may have made it more difficult to demonstrate reductions in child behaviour at post-assessment. There is some evidence in the research literature that fathers tend to rate child

externalising behaviour as occurring less frequently than mothers (Alink et al., 2006; Christensen, Margolin & Sullaway, 1992; Duhig, Renk, Epstein & Phares, 2000). This may simply be due to less exposure to these behaviours as a consequence of fathers spending less time with their children. Indeed almost all (98.5%) fathers participating in this study were working and many (59.4%) mothers were at home with their children. It may also be a function of children demonstrating less challenging behaviour with fathers versus mothers (Duhig et al., 2000). In the present study, fathers scored similarly to mothers in their ratings of dysfunctional discipline at pre-assessment, so a 'floor effect' is not a possible explanation for the lack of significant group differences at post-assessment in parenting measures. Overall, it would seem that both the brief and the standard intervention had minimal impact on fathers' ratings of their dysfunctional parenting at post-assessment relative to WL.

Two meta-analyses on the effects of Triple P interventions for fathers found smaller (but still moderate and significant) effects sizes for fathers when compared with mothers on measures of parenting and child behaviour (Fletcher, Freeman & Matthey, 2011; Nowak & Heinrichs, 2008). A third meta-analysis also found a moderate effect size for child behaviour, although there was significant heterogeneity and the overall effect size was not significantly greater than zero (Wilson et al., 2012). These findings suggest that parenting interventions are less effective for fathers than mothers and there are four possible explanations for this finding.

Firstly, poor attendance by fathers at parenting interventions may explain the reduced effectiveness. Fathers in the present study attended 49% of the SPI group sessions (with just under one-third attending all four sessions), whereas 79%

attended the single group session for the BPI. As data on fathers' attendance at parenting interventions is usually not reported at all in research (Fletcher, Freeman & Matthey, 2011; Tiano & McNeil, 2005), it is difficult to compare attendance rates in our study to previous research. Indeed, none of the five studies included in the systematic review presented in Chapter 3 reported rates of father attendance at the brief parenting interventions. As there was better attendance rates for fathers in BPI versus SPI, we may have expected enhanced outcomes for these families, since the findings of one meta-analysis demonstrated that fathers' attendance was associated with more positive change in child behaviour and parenting (Lundahl et al., 2008), but this was not found in the present study. Since father attendance at both the SPI and BPI was lower than for mothers, it remains one possible explanation for the failure to find significant effects for fathers' ratings of dysfunctional parenting and child behaviour.

Second, the lack of significant intervention effects for fathers may be due to reduced motivated to change their behaviour when compared with mothers. As fathers in the present study reported less frequent child externalising behaviour at pre-assessment than mothers (as well as higher levels of behavioural self-efficacy), they may be less likely to perceive that there is a problem with their child's behaviour, and consequently may not be motivated to implement new parenting strategies. Other researchers have hypothesised that fathers attend parenting interventions to support their partner, rather than to improve their own parenting or their child's behaviour (Fletcher, Freeman & Matthey, 201, Nowak & Heinrchs, 2008). While we obtained ratings of expectancy and motivation at pre-assessment for families participating in this study (and these ratings showed that more than 90%

families expected the program to be very or extremely helpful for them as parents and more than 90% were very or extremely motivated to attend), we did not obtain separate ratings for mothers and fathers so it is not possible to determine whether fathers differed from mothers in their expectations and motivations. Future research should obtain expectancy and motivation ratings from both parents at pre-assessment to determine whether there are differences that may explain the reduced intervention effects for fathers.

Third, it is possible that the null intervention effects for fathers found in this study reflect reality, and that the interventions did not result in reductions in child externalising behaviour – they simply modified mothers' perceptions of their child's behaviour. Wilson et al. (2012) proposed that the possible discrepancy between maternal and paternal reports of child behaviour may be accounted for by improvements in maternal mental state (as found in their meta-analysis of Triple P interventions), which in turn may have led to a more positive maternal evaluation of child behaviour. While we did not find support for this theory since there were no significant group differences in maternal negative affect in the present study, Wilson et al.'s (2012) theory does highlight the potential biases in parent reports of child behaviour and the need to include independent measures of child behaviour. As mentioned previously, observation data was only obtained on a small sub-sample of the current sample, which substantially reduced the power to find significant group differences and may have led to biases in the data. It is important that future research addresses this limitation and includes sufficient samples of observational data (or other independent measures of child behaviour) in order to measure intervention effects on child behaviour that is free from parental biases.

The final possible reason why parenting interventions may be less effective for fathers than mothers is that the intervention content and delivery was simply not appropriate for fathers, thus leading to smaller changes in dysfunctional parenting and child externalising behaviour (Nowak & Heinrichs, 2008). Researchers have proposed strategies for making parenting interventions more relevant to fathers, such as including active learning components and ensuring male facilitators (Fletcher, Freeman & Matthey, 2011) although there has been no research to examine whether such strategies make a difference to participation rates and outcomes for fathers. There has also been no research on how mothers and fathers work together to implement the strategies learnt during the intervention, and this may have a bearing on outcomes for fathers (Lundahl, Risser and Lovejoy, 2008). At present, there is a lack of empirical research to understand fathers' experiences of parenting interventions and the factors that influence their attendance, participation and outcomes and, given the null effects for fathers found in the present study, this is a key priority for future research.

Satisfaction and perceptions of the intervention. There were no specific hypotheses formulated for this study regarding parents' satisfaction with the intervention and perceived demands of the intervention, due to a lack of previous research on these constructs in brief parenting interventions. However, this study found that both mothers and fathers who received the SPI were significantly more satisfied than mothers and fathers who received the BPI. Mothers also rated the SPI as significantly more demanding than mothers in the BPI but fathers in the SPI did not differ from fathers in the BPI. This finding suggests that perception of demands of an intervention does not necessarily lead to reduced satisfaction (or efficacy) as

previously found by Kazdin and Wassell (1999). However, despite mothers rating the SPI as higher in demands than BPI, the average ratings for demands of the intervention for the SPI were low (13.1 out of a maximum score of 25), so it would appear that this intervention was not perceived as being particularly high in demands in absolute terms.

The higher satisfaction ratings for parents in the SPI versus BPI may have led to the greater changes found for the SPI at post-assessment (at least for mothers). Previous research has demonstrated that acceptability (satisfaction) ratings are significantly associated with short- and long-term outcomes in intervention research (MacKenzie, Fite and Bates, 2004). However, the greater satisfaction ratings did not appear to translate into greater effectiveness of the SPI for fathers. Despite the significant group differences in satisfaction ratings, the mean ratings for mothers and fathers in the BPI (69.6 and 62.2 out of 91 respectively) demonstrate a relatively high level of overall satisfaction with the brief intervention. These ratings were similar to ratings in a previous a study of a brief Triple P intervention which used the same scale (Morawska et al., 2011) and higher than those found for a 10-12 week self-directed intervention which involved no therapist support (Sanders et al., 2000). Therefore, brief interventions with therapist support may be more acceptable to families than longer interventions without therapist support.

In term of perceptions that the intervention was too short, twice as many mothers in BPI rated it as being too short than mothers in SPI (61.9% vs 30.0% respectively), a difference that approached significance, but fathers in SPI and BPI did not differ on this measure. The perception that the BPI was too short may have been more relevant to parents than the perceived demands of the intervention, and

this may have contributed to the lower satisfaction ratings of the BPI relative to the SPI. It is possible that some families who were allocated to the BPI may have felt that the intervention was inappropriate to address their significant concerns regarding their child's behaviour or to modify their parenting. According to Bower and Gilbody (2005), the acceptability of minimal interventions to both participants and clinicians is likely to be critical to the effectiveness of stepped care models. Future research should examine further parents' satisfaction with, and perceptions of, brief interventions to determine effects on efficacy.

5.2.2 Long-term effects of the intervention.

By 6 month follow-up there were no significant differences between SPI and BPI on any measure, according to ratings by both mothers and partners and observed measures of child and parent aversive behaviour. Given the small sample sizes at follow-up, this finding must be interpreted with caution given the study was not powered to detect medium effects between SPI and BPI. However, for mothers' ratings of outcomes, this finding may indicate that the significant differences between the BPI and SPI at post-assessment in dysfunctional parenting are no longer apparent by follow-up, and the effects of both interventions are maintained over time. Thus, it is possible that the brief intervention is having a 'sleeper effect' and that the full effects of this intervention are not apparent until several months after the intervention. Such an effect could be explained by the families who received the brief intervention going back to the manual, re-reading the information and then fully implementing the strategies in the intervening time between post-assessment and follow-up. The study did not include any measures of intervention adherence, such as homework completion, which may have shed light on this issue, but it remains

possible that the findings were due to delayed implementation of the strategies for mothers in the BPI. For partners, as there was no group differences between the two parenting interventions and WL at post-assessment (with the exception of behavioural self-efficacy), the lack of group differences at follow-up suggest the null effects continued through to follow-up.

The findings regarding the lack of group differences between SPI and BPI at follow-up for mothers should also be interpreted with caution in light of the failure of this study to include a control group at follow-up. It is possible that the lack of group differences at follow-up was due to a maturation effect within both groups (meaning that children's behaviour and parenting was simply improving over time) or to placebo effects (parents' expectations of improvements). In intervention studies with families requesting help for child externalising behaviours, it is generally considered unethical to withhold intervention from families for significant periods of time, so it would be difficult to include a waitlist group at follow-up. An alternative would be to include an 'active control group' at follow-up, which is a similar intervention that does not specifically target dysfunctional parenting (such as a parent support group for example). This may help control for possible confounds regarding maturation or expectancy. Thomas and Zimmer-Gembeck (2007) have noted that studies of parenting interventions often fail to include a control group at follow-up, so conclusions regarding the long-term effectiveness of parenting interventions overall remain tentative. Future research comparing brief and standard parenting interventions should aim to have adequate sample sizes, include a control or comparison group at follow-up and should also aim to follow-up families beyond six months in order to determine the longer-term durability of the intervention.

5.3 Clinical implications

There are three key implications of the findings of this research to clinical practice and to the delivery of parenting interventions to reduce child externalising behaviour and physical aggression. The first implication concerns the delivery of brief parenting interventions. Since the study found that abbreviating a standard parenting intervention reduced its efficacy in the short-term, clinicians should be cautious in delivering brief parenting interventions, especially in circumstances where a longer intervention is an option. Standard parenting interventions of eight sessions in duration, like Group Triple P, are the most effective interventions for parents of young children showing externalising and aggressive behaviours and should be delivered as the intervention of choice. However, as the brief parenting intervention had medium effect sizes (relative to WL) in changing dysfunctional parenting and child externalising and aggressive behaviour, it shows promise as the first step in stepped-care models of delivery. Nevertheless, before stepped-care models are disseminated widely, more research is required into the efficacy of brief interventions. There are likely to be certain families who will (and will not) benefit from brief interventions, and the characteristics of these families can be examined through studies of moderator or predictor variables, although the present study did not have a sufficient sample size to examine moderators or predictors of outcome. It may be that factors that have be found to moderate the effectiveness of standard duration parenting interventions, such as the low socio-economic status or presence of parental mental health problems (e.g., Reyno and McGrath, 2006) may determine who benefits from brief interventions. There may be relevant child factors too, such as age, the type of externalising behaviour (such as physical aggression) or severity

and pervasiveness of the behaviours. Parent preferences for brief versus longer interventions may also be important. In stepped care models, more intensive interventions are generally reserved for people who do not benefit from brief interventions, or for those who can be accurately predicted not to benefit from such interventions (Bower and Gilbody, 2005), so examination of predictors and moderators is necessary in order to inform practice around delivery of stepped care models. There certainly appears to be minimal risks involved with delivering stepped-care models of parenting interventions (especially when families express a clear preference for brief interventions), as long as families are assessed thoroughly and systematically, and more intensive interventions provided for those who do not benefit.

Secondly, the findings of this study demonstrate that toddler aggression is an important target for parenting interventions. Clearly not all toddlers with frequent aggressive behaviours will go on to show chronic trajectories of aggression, but research suggest that they are at significant risk of doing so (Côté et al., 2006) and would benefit from an early intervention. As noted in Chapter 2, much of the research on parenting interventions has targeted child externalising behaviours, and has not specifically focussed on physical aggression. There have been over 140 outcome studies on Triple P (Sanders, 2012) yet none of these studies have included a specific measure of physical aggression in children. The short-term effects of SPI on mother reports of child physical aggression in the present study were large to very large, providing proof of concept evidence that targeting developmentally excessive aggression in standard parenting interventions can result in significant changes relative to waitlist. However, as noted above, there is currently

a lack of parent-reported measures of physical aggression that are psychometrically sound and sensitive to change following interventions. Thus, in order to further research parenting interventions for childhood physical aggression, better parent-reported measures are required.

Third, it would appear that primary care practitioners (PCPs) are well placed to deliver parenting interventions for parents of young children with early externalising and aggressive behaviours. Of families participating in the study, 62% reported that they had sought help for their child's behaviour in the past year, with one-third seeking help from general practitioners (GPs) and/or child health nurses. Of those seeking help, almost one-third (31%) sought help from two or more professionals. It can only be presumed that the assistance they received from these professionals was not effective, since they went on to seek help via the present study. According to Carter, Briggs-Gowen and Davis (2004) parents commonly reported that when they shared their worries about their child's behaviour with a PCP, they were told that the problem was likely to be transient. This was supported by anecdotal reports from parents in the present study who reported that GPs and child health nurses often normalised the behaviour and provided reassurance, but did not assess the behaviour or refer them for further assistance. While reassurance may be sufficient for many parents, there is a clear need for PCPs to be trained to assess child behaviour in order to determine which families require more support. Australia has recently introduced the *Healthy Kids Check*, which is universal screening of children's social and emotional well-being from 3 years by PCPs (Daubney, Cameron & Scuffham, 2013) which may address this need. It should also be noted that other brief parenting interventions, like Primary Care Triple P, have

been specifically developed for delivery by GPs and child health nurses, and initial research suggests that such interventions can be effective when delivered by these practitioners (Turner & Sanders, 2006). Overall, on the basis of the high levels of prior help-seeking reported by parents in the current study, it would seem important to provide PCPs with training in assessment and referral of child physical aggression as a minimum, with ongoing research on the effectiveness of interventions like Primary Care Triple P.

5.4 Limitations and directions for future research

The findings of this research should be interpreted with caution in light of several key limitations. The first limitation relates to the small sample size for the RCT, and the reduced power to detect group differences. Given the sample size of 69 families across three groups, the study was only powered to detect a large effect size between groups, so would not have been able to show statistically significant group differences given a small or medium effect. While it would be ideal for future studies of brief versus standard duration parenting interventions to be powered to detect small effect sizes, this would mean that very large samples would be required (N = 1089 using a small effect size and a three group ANOVA design) which is simply not feasible in research of this kind. It should also be noted that while small, the sample size recruited for the present study was larger than those recruited for other similar studies (e.g., Nixon et al., 2003; Turner & Sanders, 2006). As noted by Coyne and Kwakkenbos (2013), small sample sizes are a serious limitation to research on parenting interventions, due to potential for bias. However, small sample sizes also reflect the practical challenges in recruiting clinical samples for intervention research.

The second limitation, which is related to the first, pertains to the observational data available for analyses. Only 52% of our sample was randomised to participate in the videotaped parent-child interaction and due to the additional loss of data due to technical difficulties, only a small sub-sample had complete data. As previously noted, given the potential biases in parental reports of child behaviour, it is important to include independent measures of child outcomes. However, low base rates of child physical aggression and aversive parenting in the present study and previous research (Morawksa & Sanders, 2006; Wakschlag et al., 2007) suggest that videotaped observations may be unlikely to capture typical parent and child behaviour. Thus, instead of observational measures, ratings by childcare workers or teachers may be preferable and should be utilised in future research.

The third limitation relates to the potential for bias in the present study. There were significant group differences at pre-intervention in the proportion of single parent families versus two-parent families. While this was the only difference to emerge across 36 pre-assessment variables examined, it may have lead to systematic differences between the groups at pre-intervention which may have influenced the findings at post-assessment. While it was not possible to control statistically for this variable in the analysis, all pre-assessment measures were controlled for, as a stringent test of intervention effectiveness (Read et al., 2013). However, this pre-existing difference between groups at pre-assessment cannot be overlooked and must be kept in mind when interpreting the results of the study. There was also potential for bias in the use of a single group facilitator for both the SPI and BPI who was also the author of this study. While the protocol adherence

measures indicated excellent adherence in both groups, these measures were subjective and there was no independent measures of protocol adherence included.

Fourth, as reviewed above, the lack of data from the waitlist group at 6 month follow-up meant that it was difficult to accurately determine the longer-term effects of the intervention. Study designs need to employ active control groups in order to ensure the effects of the intervention are not due to confounds such as maturation effects. This limitation applies to much of the existing research on parenting interventions (Thomas and Zimmer-Gembeck, 2007), and for the present study means that it is not possible to be certain of the longer-term effects of brief versus standard interventions.

Fifth, the representativeness of the sample who participated in the study was unknown, as it was not possible to collect data on families who declined to take part in the study. As noted by other researchers (Thomas & Zimmer-Gembeck, 2006; Wilson et al., 2012) and discussed in Chapter 3 in relation to previous studies on brief parenting interventions, it is possible that self-referred families may be more motivated and compliant than families in the population leading to a better than average response to intervention. The families recruited to the present study were clearly not representative of the more vulnerable families in the population, since parents' education and income levels indicated families were predominantly high in socio-economic status (SES). However, the issue of representativeness of families and the preponderance of high SES families is a limitation applies to most studies on parenting interventions (Thomas & Zimmer-Gembeck, 2006), and should be addressed in future research.

The sixth limitation relates to the management of missing data in analyses for the present study. The main findings for the study were reported without intention-to-treat (ITT) analyses and when ITT analyses were conducted (with last observation carried forward), the effects for child behaviour (according to mothers' ratings) were no longer significant, although other significant effects, such as those for parenting, remained significant. In addition, there are other methods of conducting ITT analyses such as multiple imputation or mixed-effects models which were not employed in the present study, and this could have clarified the impact of missing data on the study findings. Given that the findings for the effects of child behaviour did not remain significant with ITT analyses, the findings relating to child behaviour must be interpreted with caution and further research is needed, utilising a range of techniques for the management of missing data.

The final limitation of this research relates to the definition of brief intervention adopted for the systematic review. In Chapter 3, a brief intervention was defined as less than 8 sessions in duration on the basis that most standard parenting interventions are between 8 and 12 sessions in duration (Bradley et al., 2003; Lavigne et al., 2008) and also since brief psychological intervention for adult mental health problems was defined in this way (Nieuwmsa et al., 2011). However, it should be noted that this definition is somewhat arbitrary as it does not take into account the total duration of the intervention. As noted in the systematic review (Chapter 3), the five studies on brief intervention included in the review ranged from 2 to 8 hours in duration. The average duration of the SPI in the present study was 8 hours and 23 minutes, so it could almost be classified as being a brief intervention, which would make the BPI a *very brief* intervention. It is interesting to note that Sanders (2012)

reported that the SPI was itself developed as a ‘light touch’ alternative to the more lengthy standard 10 to 12 session individual Triple P Program. More research on brief parenting interventions is required, and this may help shape consensus definitions of what should be considered a ‘brief’ or ‘very brief’ intervention.

On the basis of these limitations, future research should aim to explore the efficacy of brief parenting interventions in adequately powered studies and to determine who benefits from brief parenting interventions in studies of moderator or predictor effects. While this study gives initial support for the long-term effects of brief intervention relative to a standard intervention, given the methodological limitations, further research is needed before brief interventions can be implemented widely. It is imperative that future research use active control groups at follow-up to ensure the longer-term effects of the intervention can be determined without the influence of potential confounds. Future research should also include follow-ups beyond six months in order to determine the longer-term durability of interventions. Given the null effects of both the standard and brief intervention for fathers in the present study, it is imperative that future research examines fathers’ experiences of parenting interventions in an effort to enhance their attendance and positive outcomes. While the findings of this study suggest parenting interventions can significantly reduce toddler physical aggression, better parent-reported measures of childhood physical aggression are required, and there is also a clear need to include independent measures of child behaviour in future research.

5.5 Conclusions

This thesis focussed on extending the reach and impact of parenting interventions for externalising and aggressive behaviour in toddlers via an RCT

comparing the effects of a brief and standard parenting intervention. Overall the findings showed that the brief 3 session intervention was not as effective in the short-term as the standard 8 session intervention in changing mother-reported child externalising and aggressive behaviour, dysfunctional parenting, parenting self-efficacy and observed child aversive behaviour. This suggests that brief parenting interventions should not be implemented as a stand-alone intervention, and standard interventions of eight sessions in duration remain the intervention of choice for parents of children with early externalising and aggressive behaviours. Physical aggression in children is an outcome that has rarely been targeted in research on parenting interventions, and the findings of the study showed that the standard eight week parenting intervention was effective in changing toddler physical aggression, with large effect sizes.

The brief intervention did impact significantly on some aspects of mothers' dysfunctional parenting in the short-term relative to waitlist. In addition, the brief intervention was equivalent to the standard intervention by 6 month follow-up across all outcomes, suggesting the possibility of a sleeper effect – although there was no waitlist group included at follow-up which limits conclusions about longer-term effects of both interventions. The medium effect sizes found for the brief intervention in the short-term were similar to effect sizes reported for parenting interventions within the literature, suggesting that the effects of the brief intervention may be not be inconsequential. However, the small sample size in the current study limited the power to detect medium effects, and there is a need for adequately powered studies in future research. For fathers, there was an overall pattern of non-significant effects at post-assessment and follow-up, suggesting that parenting interventions are less

effective for fathers than for mothers. Parents appeared to be satisfied with the brief intervention, although significantly higher satisfaction ratings were found for mothers and fathers in the standard than brief intervention, despite mothers in the standard intervention rating it as more demanding than those in the brief intervention.

Overall, much more research is needed before the widespread delivery of brief interventions via stepped care models and the question about which families and children are likely to benefit from brief parenting interventions is a priority. Given the high prevalence of externalising behaviour problems in children, and the significant and costly long-term outcomes, brief interventions delivered as part of a stepped care approach may hold considerably promise in steering children away from a trajectory of life course persistent problems. However, research on brief parenting interventions is currently in its infancy and much more research is needed over the next few years to inform delivery of stepped care models of intervention.

REFERENCES

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms & profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, and Families. .

Acker, M. M., & O'Leary, S. G. (1996). Inconsistency of mothers' feedback and toddlers' misbehavior and negative affect. *Journal of Abnormal Child Psychology, 24*(6), 703-714.

Alink, L. R. A., Mesman, J., van Zeijl, J., Stolk, M. N., Juffer, F., Koot, H. M., et al. (2006). The early childhood aggression curve: Development of physical aggression in 10-to 50-month-old children. *Child Development, 77*(4), 954-966.

Andrade, A. R., Lambert, W., & Bickman, L. (2000). Does effect in child psychotherapy: Outcomes associated with negligible treatment. *Journal of American Academy of Child and Adolescent Psychiatry, 39*(2), 161-168.

Angold, A., Costello, E. J., & Erklani, A. (1999). Comorbidity. *Journal of Child Adolescent Psychiatric Nursing, 40*(1), 57-87.

Arnold, D. S., O'Leary, S. G., Wolff, L. S., & Acker, M. M. (1993). The Parenting Scale: A measure of dysfunctional parenting in discipline situations. *Psychological Assessment, 5*, 137-144.

Assemany, A. E., & McIntosh, D. E. (2002). Negative treatment outcomes of behavioral parent training programs. *Psychology in the Schools, 39*(2), 209-219.

Bagner, D. M., & Eyberg, S. M. (2003). Father involvement in parent training: When does it matter? *Journal of Clinical Child and Adolescent Psychology, 32*(4), 599-605.

Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., & Juffer, F. (2003). Less is more: Meta-analysis of sensitivity and attachment interventions in early childhood. *Psychological Bulletin, 129*(2), 195-215.

Barlow, J., Smailagic, N., Ferriter, M., Bennett, C., & Jones, H. (2010). Group-based parent-training programmes for improving emotional and behavioural adjustment in children from birth to three years old. *Cochrane Database Systematic Reviews, (3):CD003680*. doi:10.1002/14651858.CD003680.pub2.

Barlow, J., Smailagic, N., Huband, N., Roloff, V., & Bennett, C. (2012). Group-based parent training programmes for improving parental psychosocial health.

Cochrane Database Syst Rev, 6:CD002020. doi:10.1002/14651858.CD002020.pub3

Beauchaine, T. P., Webster-Stratton, C., & Reid, M. (2005). Mediators, moderators, and predictors of 1-year outcomes among children treated for early-onset conduct problems: A latent growth curve analysis. *Journal of Consulting and Clinical Psychology, 73*(3), 371-388.

Benzies, K., Keown, L.A., & Magill-Evans, J. (2009). Immediate and sustained effects of parenting on physical aggression in Canadian children aged 6 years and younger. *The Canadian Journal of Psychiatry, 54*(1), 55-64.

Bodenmann, G., Cina, A., Ledermann, T., & Sanders, M. R. (2008). The efficacy of the Triple P-Positive Parenting Program in improving parenting and child behavior: A comparison with two other treatment conditions. *Behaviour Research and Therapy, 46*(4), 411-427.

Bongers, I. L., Koot, H. M., van der Ende, J., & Verhulst, F. C. (2003). The normative development of child and adolescent problem behavior. *Journal of Abnormal Psychology, 112*(2), 179-192.

Bower, P., & Gilbody, S. (2005). Stepped care in psychological therapies: access, effectiveness and efficiency. Narrative literature review. *The British Journal of Psychiatry, 186*, 11-17.

Bradbury, T. N., Fincham, F. D., & Beach, S. R. (2000). Research on the nature and determinants of marital satisfaction: A decade in review. *Journal of Marriage and the Family, 62*(4), 964-980.

Bradley, S. J., Jadaa, D. A., Brody, J., Landy, S., Tallett, S. E., Watson, W., et al. (2003). Brief psychoeducational parenting program: An evaluation and 1-year follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*(10), 1171-1178.

Brame, B., Nagin, D. S., & Tremblay, R. E. (2001). Developmental trajectories of physical aggression from school entry to late adolescence. *Journal of Child Psychology and Psychiatry, 42*(4), 503-512.

Brauner, C. B., & Stephens, C. B. (2006). Estimating the prevalence of early childhood serious emotional/behavioral disorders: Challenges and recommendations. *Public Health Reports. Special Report on Child Mental Health, 121*, 303-310.

Brennan, L. M., Shaw, D. S., Dishion, T. J., & Wilson, M. (2012). Longitudinal predictors of school-age academic achievement: Unique contributions of toddler-age aggression, oppositionality, inattention, and hyperactivity. *Journal of Abnormal Child Psychology, 40*(8), 1289-1300.

Brenner, V., & Fox, R. A. (1998). Parental discipline and behavior problems in young children. *The Journal of Genetic Psychology: Research and Theory on Human Development, 159*(2), 251-256.

Briggs-Gowan, M. J., & Carter, A. S. (2008). Social-emotional screening status in early childhood predicts elementary school outcomes. *Pediatrics, 121*(5), 957-962.

Briggs-Gowan, M. J., Carter, A. S., Bosson-Heenan, J., Guyer, A. E., & Horwitz, S. M. (2006). Are infant-toddler social-emotional and behavioral problems transient? *Journal of the American Academy of Child and Adolescent Psychiatry, 45*(7), 849-858.

Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., & Dodge, K. A. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. *Developmental Psychology, 39*(2), 222-245.

Brotman, L. M., Gouley, K. K., Huang, K.-Y., Rosenfelt, A., O'Neal, C., Klein, R. G., et al. (2008). Preventive intervention for preschoolers at high risk for antisocial behavior: Long-term effects on child physical aggression and parenting practices. *Journal of Clinical Child and Adolescent Psychology, 37*(2), 386-396.

Brotman, L. M., O'Neal, C. R., Huang, K.-Y., Gouley, K. K., Rosenfelt, A., & Shrout, P. E. (2009). An experimental test of parenting practices as a mediator of early childhood physical aggression. *Journal of Child Psychology and Psychiatry, 50*(3), 235-245.

Burke, J. D., Loeber, R., & Birmaher, B. (2002). Oppositional defiant disorder and conduct disorder: A review of the past 10 years, part II. *Journal of the American Academy of Child & Adolescent Psychiatry, 41*(11), 1275-1293.

Burt, K. B., Obradovic, J., Long, J. D., & Masten, A. S. (2008). The interplay of social competence and psychopathology over 20 years: Testing transactional and cascade models. *Child Development, 79*(2), 359-374.

Campbell, S. B., March, C. L., Pierce, E. W., Ewing, L. J., & Szumowski, E. K. (1991). Hard to manage preschool boys: Family context and the stability of externalizing behavior. *Journal of Abnormal Child Psychology, 19*(3), 301-318.

Campbell, S. B., Pierce, E. W., March, C. L., Ewing, L. J., & Szumowski, E. K. (1994). Hard-to-manage preschool boys: Symptomatic behavior across contexts and time. *Child Development, 65*(3), 836-851.

Campbell, S. B., Spieker, S., Burchinal, M., & Poe, M. D. (2006). Trajectories of aggression from toddlerhood to age 9 predict academic and social functioning through age 12. *Journal of Child Psychology and Psychiatry, 47*(8), 791-800.

Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79*(5), 1185-1229.

Carrasco, J. M., & Fox, R. A. (2012). Varying treatment intensity in a home-based parent and child therapy program for families living in poverty: A randomized clinic trial. *Journal of Community Psychology, 40*(5), 621-630.

Carter, A. S., Briggs-Gowan, M. J., & Davis, N. O. (2004). Assessment of young children's social-emotional development and psychopathology: Recent advances and recommendations for practice. *Journal of Child Psychology and Psychiatry, 45*(1), 109-134.

Casey, R. J., & Berman, J. S. (1985). The outcome of psychotherapy with children. *Psychological Bulletin, 98*(2), 388-400.

Chen, X., Huang, X., Chang, L., Wang, L., & Li, D. (2010). Aggression, social competence, and academic achievement in Chinese children: A 5-year longitudinal study. *Development and Psychopathology, 22*(3), 583-592.

Christensen, A., Margolin, G., & Sullaway, M. (1992). Interparental agreement on child behavior problems. *Psychological Assessment, 4*(4), 419-425.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New Jersey: Lawrence Erlbaum

Coleman, P. K., & Karraker, K. H. (1998). Self-efficacy and parenting quality: Findings and future applications. *Developmental Review, 18*(1), 47-85.

Colman, I., Murray, J., Abbott, R. A., Maughan, B., Kuh, D., Croudace, T. J., et al. (2009). Outcomes of conduct problems in adolescence: 40 year follow-up of national cohort. *British Medical Journal, 338*, Jan 8;338:a2981. doi: 2910.1136/bmj.a2981.

Copeland, W. E., Shanahan, L., Erkanli, A., Costello, E. J., & Angold, A. (2013). Indirect comorbidity in childhood and adolescence. *Frontiers in Psychiatry, 4*(144). doi:10.3389/fpsyt.2013.00144

Côté, S. M., Vaillancourt, T., LeBlanc, J. C., Nagin, D. S., & Tremblay, R. E. (2006). The development of physical aggression from toddlerhood to pre-adolescence: A nation wide longitudinal study of canadian children. *Journal of Abnormal Child Psychology, 34*(1), 71-85.

Coyne, J. C., & Kwakkenbos, L. (2013). Triple P-Positive Parenting programs: the folly of basing social policy on underpowered flawed studies. *BMC Medicine, 11*(1), 11.

Cummings, E., Iannotti, R. J., & Zahn-Waxler, C. (1989). Aggression between peers in early childhood: Individual continuity and developmental change. *Child Development, 60*(4), 887-895.

Daubney, M. F., Cameron, C. M., & Scuffham, P. A. (2013). Changes to the Healthy Kids Check: Will we get it right? *Medical Journal of Australia, 198*(9), 475-477.

Day, R. D., Peterson, G. W., & McCracken, C. (1998). Predicting spanking of younger and older children by mothers and fathers. *Journal of Marriage and the Family, 60*, 79-94.

de Graaf, I., Speetjens, P., Smit, F., de Wolff, M., & Tavecchio, L. (2008a). Effectiveness of the Triple P Positive Parenting Program on behavioural problems in children: A meta-analysis. *Behavior Modification, 32*, 714-735.

de Graaf, I., Speetjens, P., Smit, F., de Wolff, M., & Tavecchio, L. (2008b). Effectiveness of the Triple P Positive Parenting Program on Parenting: A meta-analysis. *Family Relations, 57*, 553-566.

Deater-Deckard, K., Dodge, K. A., Bates, J. E., & Pettit, G. S. (1998). Multiple risk factors in the development of externalizing behavior problems: Group and individual differences. *Development and Psychopathology, 10*(3), 469-493.

Dekovic, M., Asscher, J. J., Hermanns, J., Reitz, E., Prinzie, P., & van den Akker, A. L. (2010). Tracing changes in families who participated in the home-start parenting program: Parental sense of competence as mechanism of change. *Prevention Science, 11*(3), 263-274.

Del Vecchio, T., & O'Leary, S. G. (2008). Predicting maternal discipline responses to early child aggression: The role of cognitions and affect. *Parenting: Science and Practice, 8*(3), 240-256.

Dionne, G., Tremblay, R., Boivin, M., Laplante, D., & Perusse, D. (2003). Physical aggression and expressive vocabulary in 19-month-old twins. *Developmental Psychology, 39*(2), 261-273.

Dishion, T. J., Shaw, D. S., Connell, A., Gardner, F., Weaver, C., & Wilson, M. (2008). The Family Check-Up with high-risk indigent families: Preventing problem behaviour by increasing parents' positive behavior support in early childhood. *Child Development, 79*(5), 1395-1414.

Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53*(6), 1146-1158.

Doig, G. S., & Simpson, F. (2005). Randomization and allocation concealment: A practical guide for researchers. *Journal of Critical Care, 20*(2), 187-191.

Downs, S. H., & Black, N. (1998). The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health care interventions. *Journal of Epidemiology and Community Health, 52*, 377-384.

Dretzke, J., Davenport, C., Frew, E., Barlow, J., Stewart-Brown, S., Bayliss, S., et al. (2009). The clinical effectiveness of different parenting programmes for children with conduct problems: A systematic review of randomised controlled trials. *Child and Adolescent Psychiatry and Mental Health, 3*, 7.

Duhig, A. M., Renk, K., Epstein, M. K., & Phares, V. (2000). Interparental agreement on internalizing, externalizing, and total behavior problems: A meta-analysis. *Clinical Psychology: Science and Practice, 7*(4), 435-453.

Eyberg, S., Boggs, S. R., & Algina, J. (1995). Parent-child interaction therapy: A psychosocial model for the treatment of young chidlren with conduct problem behavior and their families. *Psychopharmacology Bulletin, 31*, 83-91.

Eyberg, S. M. (Ed.). (1993). *Consumer satisfaction measures for assessing parent training programs* (Vol. 12). Sarasota, FL: Professional Resource Press.

Eyberg, S. M., Nelson, M. M., & Boggs, S. R. (2008). Evidence-based psychosocial treatments for children and adolescents with disruptive behavior. *Journal of Clinical Child and Adolescent Psychology, 37*, 218-237.

Eyberg, S.M., & Pincus, D. (1999). *Eyberg Child Behavior Inventory and Sutter-Eyberg Student Behavior Inventory-Revised: Professional Manual.* Odessa, FL: Psychological Assessment Resources.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175-191.

Fergusson, D. M., Horwood, L. J., & Ridder, E. M. (2005). Show me the child at seven: The consequences of conduct problems in childhood for psychosocial functioning in adulthood. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 46*(8), 837-849.

Flay, B. R., Biglan, A., Boruch, R. F., Castro, F. G., Gottfredson, D., Kellam, S., et al. (2005). Standards of Evidence: Criteria for Efficacy, Effectiveness and Dissemination. *Prevention Science, 6*(3), 151-175.

Fletcher, R., Freeman, E., & Matthey, S. (2011). The Impact of Behavioral Parent Training on Fathers' Parenting: A Meta-Analysis If the Triple P-Positive Parenting Program *Fathering, 9*(3), 291-312.

Fossum, S., Morch, W.T., Handegard, B. H., Drugli, M. B., & Larsson, B. (2009). Parent training for young Norwegian children with ODD and CD problems:

Predictors and mediators of treatment outcome. *Scandinavian Journal of Psychology, 50*(2), 173-181.

Foster, E., & Jones, D. E. (2005). The High Costs of Aggression: Public Expenditures Resulting From Conduct Disorder. *American Journal of Public Health, 95*(10), 1767-1772.

Foster, E. M., Prinz, R. J., Sanders, M. R., & Shapiro, C. J. (2008). The costs of a public health infrastructure for delivering parenting and family support. *Children and Youth Services Review, 30*(5), 493-501.

Frick, P. J. (2004). Developmental pathways to conduct disorder: Implications for serving youth who show severe aggressive and antisocial behavior. *Psychology in the Schools, 41*(8), 823-834.

Furlong, M., McGilloway, S., Bywater, T., Hutchings, J., Smith, S. M., & Donnelly, M. (2012). Behavioural and cognitive-behavioural group-based parenting programmes for early-onset conduct problems in children aged 3 to 12 years. *Cochrane Database of Systematic Reviews, 15;2:CD008225*. doi:0.1002/14651858.CD008225.pub2.

Gallart, S. C., & Matthey, S. (2005). The effectiveness of Group Triple P and the impact of the four telephone contacts. *Behaviour Change, 22*(2), 71-80.

Gardner, F.E., Burton, J., & Klimes, I. (2006). Randomised controlled trial of a parenting intervention in the voluntary sector for reducing child conduct problems: outcomes and mechanisms of change. *Journal of Child Psychology and Psychiatry, 47*(11), 1123-1132.

Gardner, F.E., Hutchings, J., Bywater, T., & Whitaker, C. (2010). Who benefits and how does it work? Moderators and mediators of outcome in an effectiveness trial of a parenting intervention. *Journal of Clinical Child and Adolescent Psychology, 39*(4), 568-580.

Gardner, F. E. (1989). Inconsistent parenting: Is there evidence for a link with children's conduct problems? *Journal of Abnormal Child Psychology, 17*(2), 223-233.

Gershoff, E. T. (2002). Corporal punishment by parents and associated child behaviors and experiences: A meta-analytic and theoretical review. *Psychological Bulletin, 128*(4), 539-579.

Gershoff, E. T., Lansford, J. E., Sexton, H. R., Davis-Kean, P., & Sameroff, A. J. (2012). Longitudinal links between spanking and children's externalizing behaviors in a national sample of White, Black, Hispanic, and Asian American families. *Child Development, 83*(3), 838-843.

Gilliom, M., & Shaw, D. S. (2004). Codevelopment of externalizing and internalizing problems in early childhood. *Development and Psychopathology, 16*(2), 313-333.

Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *American Journal of Public Health, 89*(9), 1322-1327.

Guevara, J. P., Mandell, D. S., Rostain, A. L., Zhao, H., & Hadley, T. R. (2003). National estimates of health services expenditures for children with behavioral disorders: An analysis of the medical expenditure panel survey. *Pediatrics, 112*(6), e440.

Haaga, D. A. F. (2000). Introduction ot the special section on stepped-care models in psychotherapy. *Journal of Consulting and Clinical Psychology, 68*, 547-548.

Hakman, M., & Sullivan, M. (2009). The effect of task and maternal verbosity on compliance in toddlers. *Infant and Child Development, 18*(2), 195-205.

Hawes, D. J., Dadds, M. R., & Pasalich, D. (2013). Observational coding strategies. In J. C. P. Kendall (Ed.), *The Oxford Handbook of Research Strategies for Clinical Psychology* (pp. 120-141). New York: Oxford University Press.

Heinrichs, N., Bertram, H., Kuschel, A., & Hahlweg, K. (2005). Parent recruitment and retention in a universal prevention program for child behavior and emotional problems: Barriers to research and program participation. *Prevention Science, 6*, 275-286.

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44*(2), 227-239.

Horwitz, S. M., Leaf, P. J., Leventhal, J. M., Forsyth, B., & Nixon, K. (1992). Identification and management of psychosocial and developmental problems in community-based, primary care pediatric practices. *Pediatrics 89* (3), 480-485.

Houtrow, A. J., & Okumura, M. J. (2011). Pediatric mental health problems and associated burden on families. *Vulnerable Children and Youth Studies, 6*(3), 222-223.

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59*(1), 12-19.

Joachim, S., Sanders, M. R., & Turner, K. M. T. (2010). Reducing Preschoolers' Disruptive Behavior in Public with a Brief Parent Discussion Group. *Child Psychiatry & Human Development, 41*(1), 47-60.

Kaminski, J. W., Valle, L. A., Filene, J. H., & Boyle, C. L. (2008). A meta-analytic review of components associated with parent training program effectiveness. *Journal of Abnormal Child Psychology, 36*(4), 567-589.

Kazdin, A. E. (1995). *Conduct Disorders in Childhood and Adolescence* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Kazdin, A. E. (1996). Dropping out of child psychotherapy: Issues for research and implications for practice. *Clinical Child Psychology and Psychiatry, 1*, 133-156.

Kazdin, A. E. (2008). Evidence-based threatments and delivery of psychological services: Shifting our emphases to increase impact. *Psychological Services, 5 (3),* 201-215.

Kazdin, A. E., Holland, L., & Crowley, M. (1997). Family experience of barriers to treatment and premature termination from child therapy. *Journal of Consulting and Clinical Psychology, 65*, 453-463.

Kazdin, A. E., Holland, L., Crowley, M., & Breton, S. (1997). Barriers to treatment participation scale: Evaluation and validation in the context of child outpatient treatment. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 38*(8), 1051-1062.

Kazdin, A. E., & Wassell, G. (1999). Barriers to treatment participation and therapeutic change among children referred for conduct disorder. *Journal of Clinical Child Psychology, 28*(2), 160-172.

Keenan, K., Shaw, D., Delliquadri, E., Giovannelli, J., & Walsh, B. (1998). Evidence for the continuity of early problem behaviors: Application of a developmental model. *Journal of Abnormal Child Psychology, 26*(6), 441-452.

Keenan, K., & Shaw, D. S. (1994). The Development of Aggression in Toddlers - a Study of Low-Income Families. *Journal of Abnormal Child Psychology, 22*(1), 53-77.

Kendall, P. C., Comer, J. S., & Chow, C. (2013). The randomized controlled trial: Basics and beyond. In J. C. P. Kendall (Ed.), *The Oxford Handbook of Research Strategies for Clinical Psychology* (pp. 40-61). New York: Oxford University Press.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K., & Walters, E. E. (2005). Lifetime Prevalence and Age-of-Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*(6), 593-602.

Kim-Cohen, J., Caspi, A., Moffitt, T. E., Harrington, H., Milne, B. J., & Poulton, R. (2003). Prior juvenile diagnoses in adults with mental disorder: Developmental

follow-back of a prospective-longitudinal cohort. *Archives of General Psychiatry, 60*(7), 709-717.

Kjøbli, J., & Bjørnebekk, G. (2013). A Randomized Effectiveness Trial of Brief Parent Training: Six-Month Follow-Up. *Research on Social Work Practice* doi:DOI: 10.1177/1049731513492860

Kjøbli, J., & Odgen, T. (2012). A randomized effectiveness trial of brief parent training in primary care settings. *Prevention Science, 13*(6), 616-626.

Knutson, J. F., DeGarmo, D. S., & Reid, J. B. (2004). Social disadvantage and neglectful parenting as precursors to the development of antisocial and aggressive child behavior: Testing a theoretical model. *Aggressive Behavior, 30*(3), 187-205.

Kraatz Keiley, M., Bates, J. E., Dodge, K. A., & Pettit, G. S. (2000). A cross-domain growth analysis: Externalizing and internalizing behaviors during 8 years of childhood. *Journal of Abnormal Child Psychology, 28*(2), 161-179.

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33*(1), 159–174.

Lavigne, J. V., LeBailly, S. A., Gouze, K. R., Cicchetti, C., Pochyly, J., Arend, R., et al. (2008). Treating oppositional defiant disorder in primary care: A comparison of three models. *Journal of Pediatric Psychology, 33*(5), 449-461.

Leung, C., Sanders, M. R., Leung, S., Mak, R., & Lau, J. (2003). An outcome evaluation of the implementation of the Triple P-Positive Parenting Program in Hong Kong. *Family Process, 42*(4), 531-544.

Lewis, C., & Lamb, M. E. (2003). Fathers' influence on children's development: The evidence from two-parent families. *European Journal of Psychology of Education, 18*, 211-228.

Liu, J. (2004). Childhood Externalizing Behavior: Theory and Implications. *Journal of Child Adolescent Psychiatric Nursing, 17*(3), 93-103.

Liu, J., Lewis, G., & Evans, L. (2013). Understanding aggressive behaviour across the lifespan. *Journal of Psychiatric and Mental Health Nursing, 20*(2), 156-168.

Lovibond, S. H., & Lovibond, P. F. (1995). Manual for the Depression Anxiety Stress Scales (2nd Ed). Psychology Foundation of Australia.

Lundahl, B., Risser, H. J., & Lovejoy, M. C. (2006). A meta-analysis of parent training: Moderators and follow-up effects. *Clinical Psychology Review, 26*(1), 86-104.

Lundahl, B. W., Tollefson, D., Risser, H., & Lovejoy, M. C. (2008). A meta-analysis of father involvement in parent training. *Research on Social Work Practice, 18*(2), 97-106.

Lysenko, L. J., Barker, E. D., & Jaffee, S. R. (2013). Sex differences in the relationship between harsh discipline and conduct problems. *Social Development, 22*(1), 197-214.

Maccoby, E. E. (1980). *Social Development*. New York: Harcourt Brace Jovanovich.

MacKenzie, E. P., Fite, P. J., & Bates, J. E. (2004). Predicting Outcome in Behavioral Parent Training: Expected and Unexpected Results. *Child & Family Behavior Therapy, 26*(2), 37-53.

Malti, T., Ribeaud, D., & Eisner, M. (2011). The effectiveness of two universal preventive interventions in reducing children's externalizing behavior: a cluster randomized controlled trial. *Journal of Clinical Child Adolescent Psychology*, *40*, 677-692

Martel, M. M. (2013). Sexual selection and sex differences in the prevalence of childhood externalizing and adolescent internalizing disorders. *Psychological Bulletin, 139*(6), 1221-1259.

Matsumoto, Y., Sofronoff, K., & Sanders, M. R. (2007). The efficacy and acceptability of the Triple P-Positive Parenting Program with Japanese parents. *Behaviour Change, 24*(4), 205-218.

Maughan, D. R., Christiansen, E., Jenson, W. R., Olimpia, D., & Clark, E. (2005). Behavioral parental training as a treatment for externalizing behaviors and disruptive behavior disorders: A meta-analysis. *School Psychology Review, 34*, 267–286.

McCart, M. R., Priester, P. E., Davies, W., & Azen, R. (2006). Differential Effectiveness of Behavioral Parent-Training and Cognitive-Behavioral Therapy for Antisocial Youth: A Meta-Analysis. *Journal of Abnormal Child Psychology, 34*(4), 527-543.

McFadyen-Ketchum, S. A., Bates, J. E., Dodge, K. A., & Pettit, G. S. (1996). Patterns of change in early childhood aggressive-disruptive behavior: Gender differences in predictions from early coercive and affectionate mother-child interactions. *Child Development, 67*(5), 2417-2433.

Meier, M. H., Slutske, W. S., Heath, A. C., & Martin, N. G. (2009). The role of harsh discipline in explaining sex differences in conduct disorder: A study of opposite-sex twin pairs. *Journal of Abnormal Child Psychology, 37*(5), 653-664.

Menting, A. T., de Castro, B. O., & Matthys, W. (2013). Effectiveness of the Incredible Years parent training to modify disruptive and prosocial child behavior: A meta-analytic review. *Clinical Psychology Review, 33*(8), 901-913.

Mesman, J., Alink, L. R. A., Van Zeiji, J., Stolk, M. N., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., et al. (2008). Observation of early childhood physical aggression: A psychometric study of the system for coding early physical aggression. *Aggressive Behavior, 34*(5), 539-552.

Metzler, C. W., Sanders, M. R., Rusby, J. C., & Crowley, R. N. (2012). Using consumer preference information to increase the reach and impact of media-based parenting interventions in a public health approach to parenting support. *Behavior Therapy, 43*(2), 257-270.

Mihalopoulos, C., Sanders, M. R., Turner, K. M., Murphy-Brennan, M., & Carter, R. (2007). Does the Triple P-Positive Parenting Program provide value for money? *Australian and New Zealand Journal of Psychiatry, 41*(3), 239-246.

Miner, J. L., & Clarke-Stewart, A. (2008). Trajectories of externalising behavior from age 2 to age 9: Relations with gender, temperament, ethnicity, parenting, and rater. *Developmental Psychology, 44*(3), 771-786.

Minton, C., Kagan, J., & Levine, J. A. (1971). Maternal control and obedience in the two-year-old. *Child Development, 42*(6), 1873-1894.

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behaviour: A developmental taxonomy. *Psychological Review, 100*, 674-701.

Moffitt, T. E., Arseneault, L., Jaffee, S. R., Kim-Cohen, J., Koenen, K. C., Odgers, C. L., et al. (2008). Research review: DSM-V conduct disorder: Research needs for an evidence base. *Journal of Child Psychology and Psychiatry, 49*(1), 3-33.

Moilanen, K. L., Shaw, D. S., & Maxwell, K. L. (2010). Developmental cascades: Externalizing, internalizing, and academic competence from middle childhood to early adolescence. *Development and Psychopathology, 22*(3), 635-653.

Moncur, R. A., & Larmer, J. C. (2009). Clinical Applicability of Intention-to-Treat Analyses. *McMaster University Medical Journal, 6*, 39-41.

Montgomery, P., Bjornstad, G. J., & Dennis, J. A. (2006). Media-based behavioural treatments for behavioural problems in children. *Cochrane Database of Systematic Reviews, Issue 1. Art. No.: CD002206. DOI: 10.1002/ 14651858.CD002206.pub3*

Morawska, A., Haslam, D., Milne, D., & Sanders, M. R. (2011). Evaluation of a brief parenting discussion group for parents of young children. *Journal of Developmental and Behavioral Pediatrics, 32*(2), 136-145.

Morawska, A., & Sanders, M. R. (2006). Self-administered behavioural family intervention for parents of toddlers: Effectiveness and dissemination. *Behaviour Research and Therapy, 44*(12), 1839-1848.

Morawska, A., Stalling, A., Adamson, M., & Winter, L. (in preparation). Microanalytic versus global coding of maternal parenting behaviour.

Mrazek, P. J., & Haggerty, R. J. (Eds.). (1994). *Reducing risks for mental disorders: Frontiers for preventive intervention research.* Washington: National Academy Press.

Nagin, D., & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development, 70*(5), 1181-1196.

NICHD Early Child Care Research Network. (2004). Trajectories of physical aggression from toddlerhood to middle childhood: Predictors, correlates, and outcomes. *Monographs of the Society for Research in Child Development, 69*(4), 1-146.

Nieuwsma, J. A., Trivedi, R. B., McDuffie, J., Kronish, I., Benjamin, D., & Williams, J. W., Jr. (2012). Brief psychotherapy for depression: A systematic review and meta-analysis. *International Journal of Psychiatry in Medicine, 43*(2), 129-151.

Nixon, R. D., Sweeney, L., Erickson, D. B., & Touyz, S. W. (2003). Parent-child interaction therapy: A comparison of standard and abbreviated treatments for oppositional defiant preschoolers. *Journal of Consulting and Clinical Psychology, 71*(2), 251-260.

Norton, R. (1983). Measuring marital quality: A critical look at the dependent variable. *Journal of Marriage and the Family, 45*, 141-151.

Nowak, C., & Heinrichs, N. (2008). A comprehensive meta-analysis of Triple P-Positive Parenting Program using hierarchical linear modeling: Effectiveness and moderating variables. *Clinical Child and Family Psychology Review, 11*(3), 114-144.

O'Brien, M., & Daley, D. (2011). Self-help parenting interventions for childhood behaviour disorders: A review of the evidence. *Child: Care, Health and Development, 37*(5), 623-637.

O'Leary, S. G., Smith Slep, A. M., & Reid, M. J. (1999). A longitudinal study of mothers' overreactive discipline and toddler's externalizing behavior. *Journal of Abnormal Child Psychology, 27*(5), 331-341.

Odgers, C. L., Caspi, A., Broadbent, J. M., Dickson, N., Hancox, R. J., Harrington, H., et al. (2007). Prediction of differential adult health burden by conduct problem subtypes in males. *Archives of General Psychiatry, 64*(4), 476-484.

Odgers, C. L., Moffitt, T. E., Broadbent, J. M., Dickson, N., Hancox, R. J., Harrington, H., et al. (2008). Female and male antisocial trajectories: From childhood origins to adult outcomes. *Development and Psychopathology, 20*(2), 673-716.

Ogden, T., & Hagen, K. A. (2008). Treatment effectiveness of parent management training in Norway: A randomized controlled trial of children with conduct problems. *Journal of Consulting and Clinical Psychology, 76*(4), 607-621.

Olweus, D. (1979). Stability of aggressive patterns in males: A review. *Psychological Bulletin, 86*, 852-875.

Paterson, G., & Sanson, A. (1999). The association of behavioural adjustment to temperament, parenting and family characteristics among 5-year-old children. *Social Development, 8*(3), 293-309.

Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia.

Patterson, G. R., Forgatch, M. S., Yoerger, K. L., & Stoolmiller, M. (1998). Variables that initiate and maintain an early-onset trajectory for juvenile offending. *Development and Psychopathology, 10*(3), 531-547.

Patterson, G. R., Reid, J. B., & Eddy, J. M. (2002). A brief history of the Oregon Model. In J. B. Reid, G. R. Patterson, & J. Snyder (Eds.), *Antisocial behavior in children and adolescents: A developmental analysis and model for intervention* (pp. 3-21). Washington, DC: American Psychological Association.

Pavuluri, M. N., Luk, S.L., & McGee, R. (1996). Help-seeking for behavior problems by parents of preschool children: A community study. *Journal of the American Academy of Child & Adolescent Psychiatry, 35*(2), 215-222.

Perkins, R. (2006). The effectiveness of one session of therapy using a single-session therapy approach for children and adolescents with mental health problems. *Psychology and Psychotherapy: Theory, Research and Practice, 79*, 215-227.

Pettit, G. S., & Arsiwalla, D. D. (2008). Commentary on special section on "Bidirectional parent-child relationships": The continuing evolution of dynamic, transactional models of parenting and youth behavior problems. *Journal of Abnormal Child Psychology, 36*(5), 711-718.

Pettit, G. S., & Bates, J. E. (1989). Family interaction patterns and children's behavior problems from infancy to 4 years. *Developmental Psychology, 25*(3), 413-420.

Pettit, G. S., & Dodge, K. A. (2003). Violent children: Bridging development, intervention, and public policy. *Developmental Psychology, 39*(2), 187-188.

Pfiffner, L. J., & O'Leary, S. G. (1989). Effects of maternal discipline and nurturance on toddler's behavior and affect. *Journal of Abnormal Child Psychology, 17*(5), 527-540.

Pike, A., Iervolino, A. C., Eley, T. C., Price, T. S., & Plomin, R. (2006). Environmental risk and young children's cognitive and behavioral development. *International Journal of Behavioral Development, 30*(1), 55-66.

Pingault, J. B., Côté, S. M., Lacourse, E., Galéra, C., Vitaro, F., & Tremblay, R. E. (2013). Childhood hyperactivity, physical aggression and criminality: A 19-year prospective population-based study. *PLOS One, 8*(5). doi:10.1371/journal.pone.0062594

Power, T. G., & Chapieski, M. (1986). Childrearing and impulse control in toddlers: A naturalistic investigation. *Developmental Psychology, 22*(2), 271-275.

Prinz, R. J., & Sanders, M. R. (2007). Adopting a population-level approach to parenting and family support interventions. *Clinical Psychology Review, 27*(6), 739-749.

Prinz, R. J., Sanders, M. R., Shapiro, C. J., Whitaker, D. J., & Lutzker, J. R. (2009). Population-Based Prevention of Child Maltreatment: The US Triple P System Population Trial. *Prevention Science, 10*(1), 1-12.

Read, K. L., Kendall, P. C., Carper, M. M., & Rausch, J. R. (2013). Statistical Methods for Use in the Analysis of Randomized Clinical Trials Utilizing a Pretreatment, Posttreatment, Follow-up (PPF) Paradigm. In J. C. P. Kendall (Ed.), *The Oxford Handbook of Research Strategies for Clinical Psychology* (pp.253-261). New York: Oxford University Press.

Reef, J., Diamantopoulou, S., van Meurs, I., Verhulst, F., & van der Ende, J. (2010). Predicting adult emotional and behavioral problems from externalizing problem trajectories in a 24-year longitudinal study. *European Child & Adolescent Psychiatry, 19*(7), 577-585.

Regalado, M., Sareen, H., Inkelas, M., Wissow, L. S., & Halfon, N. (2004). Parents' discipline of young children: Results from the National Survey of Early Childhood Health. *Pediatrics, 113*, 1952–1958.

Reid, M., Webster-Stratton, C., & Baydar, N. (2004). Halting the Development of Conduct Problems in Head Start Children: The Effects of Parent Training. *Journal of Clinical Child and Adolescent Psychology, 33*(2), 279-291.

Reyno, S. M., & McGrath, P. J. (2006). Predictors of parent training efficacy for child externalizing behavior problems - a meta-analytic review. *Journal of Child Psychology and Psychiatry*, *47*, 99–111.

Rogers, J. L., Howard, K. I., & Vessey, J. T. (1993). Using significance tests to evaluate equivalence between two experimental groups. *Psychological Bulletin, 113*(3), 553-565.

Salari, R., Terreros, C., & Sarkadi, A. (2012). Parenting Scale: Which version should we use? *Journal of Psychopathology and Behavioural Assessment*, *34*, 268-281.

Salzer, M. S., Bickman, L., & Lambert, E. (1999). Dose-effect relationship in children's psychotherapy services. *Journal of Consulting and Clinical Psychology, 67*(2), 228-238.

Sanders, M. R. (1999). Triple P-Positive Parenting Program: Towards an empirically validated multilevel parenting and family support strategy for the prevention of behavior and emotional problems in children. *Clinical Child and Family Psychology Review, 2*(2), 71-90.

Sanders, M. R. (2008). Triple P-Positive Parenting Program as a public health approach to strengthening parenting. *Journal of Family Psychology, 22*(4), 506-517.

Sanders, M. R. (2012). Development, evaluation, and multinational dissemination of the Triple P-Positive Parenting Program. *Annual Review of Clinical Psychology, 8*, 345-379.

Sanders, M. R., Dadds, M. R., & Bor, W. (1989). Contextual Analysis of Child Oppositional and Maternal Aversive Behaviors in Families of Conduct-Disordered and Nonproblem Children. *Journal of Clinical Child Psychology, 18*, 72–83.

Sanders, M.R., & Kirby, J. (2010). Parental programs for preventing behavioural and emotional problems in children. In D. R. James Bennett-Levy, Paul Farrand, Helen Christensen, Kathy Griffiths (Ed.), *Oxford Guide to Low Intensity CBT Interventions*. New York: Oxford University Press.

Sanders, M. R., Markie-Dadds, C., Tully, L. A., & Bor, W. (2000). The Triple P-Positive Parenting Program: A comparison of enhanced, standard, and self-directed behavioral family intervention for parents of children with early onset conduct problems. *Journal of Consulting and Clinical Psychology, 68*(4), 624-640.

Sanders, M. R., Pickering, J. A., Kirby, J. N., Turner, K. M., Morawska, A., Mazzucchelli, T., et al. (2012). A commentary on evidenced-based parenting programs: redressing misconceptions of the empirical support for Triple P. *Bmc Medicine, 10*(145).

Sanders, M. R., Markie-Dadds, C., & Turner, K. M. T. (2003). Theoretical, scientific and clinical foundations of Triple P - Positive Parenting Program: A population

approach to the promotion of parenting competence. *Parenting Research and Practice Monograph, 1*, 1-21.

Sanders, M. R., Tully, L. A., Baade, P. D., Lynch, M. E., Heywood, A. H., Pollard, G. E., et al. (1999). A survey of parenting practices in Queensland: Implications for mental health promotion. *Health Promotion Journal of Australia, 9*, 112-121.

Sanders, M. R., & Turner, K. M. T. (2010). *Primary Care Triple P discussion group workbook: Managing fighting and aggression*. Brisbane, QLD, Australia: Triple P International Pty. Ltd.

Sanders, M. R., Waugh, L., Tully, L. A., & Hynes, K. (1996). The Revised Family Observation Schedule (3rd ed.). Parenting and Family Support Centre.

Sanders, M. R., & Woolley, M. L. (2001). Parenting Task Checklist. Brisbane, Queensland: Parenting and Family Support Centre.

Sanders, M. R., & Woolley, M. L. (2005). The relationship between maternal self-efficacy and parenting practices: implications for parent training. *Child Care Health and Development, 31*(1), 65-73.

Sawyer, M. G., Arney, F. M., Baghurst, P. A., Clark, J. J., Graetz, B. W., Kosky, R. J., et al. (2001). The mental health of young people in Australia: Key findings from the child and adolescent component of the national survey of mental health and well-being. *Australian and New Zealand Journal of Psychiatry, 35*, 806-814.

Scaramella, L. V., & Leve, L. D. (2004). Clarifying Parent-Child Reciprocities During Early Childhood: The Early Childhood Coercion Model. *Clinical Child and Family Psychology Review, 7*(2), 89-107.

Scott, S. (2001). Deciding whether interventions for antisocial behaviour work: Principles of outcome assessment, and practice in a multicentre trial. *European Child & Adolescent Psychiatry, 10*(5), I59-I70.

Scott, S. (2005). Do parenting programmes for severe child antisocial behaviour work over the longer term, and for whom? One year follow-up of a multi-centre controlled trial. *Behavioural and Cognitive Psychotherapy, 33*(4), 403-421.

Schulz, K.F., Altman, D.G., & Moher, D., for the CONSORT Group (2010). CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials. *BMC Medicine*, *8*, 18.

Serketich, W. J., & Dumas, J. E. (1996). The effectiveness of behavioral parent training to modify antisocial behavior in children: A meta-analysis. *Behavior Therapy, 27*(2), 171-186.

Shaw, D. S., Gilliom, M., Ingoldsby, E. M., & Nagin, D. S. (2003). Trajectories leading to school-age conduct problems. *Developmental Psychology, 39*(2), 189-200.

Smith, C. A., & Farrington, D. P. (2004). Continuities in antisocial behavior and parenting across three generations. *Journal of Child Psychology and Psychiatry, 45*(2), 230-247.

Smith, T. K., Duggan, A., Bair-Merritt, M. H., & Cox, G. (2012). Systematic review of fathers' involvement in programmes for the primary prevention of child maltreatment. *Child Abuse Review, 21*, 237-254.

Snyder, J., Edwards, P., McGraw, K., Kilgore, K., & Holton, A. (1994). Escalation and reinforcement in mother-child conflict: Social processes associated with the development of physical aggression. *Development and Psychopathology, 6*(2), 305-321.

Stanger, C., Achenbach, T. M., & Verhulst, F. C. (1997). Accelerated longitudinal comparisons of aggressive versus delinquent syndromes. *Development and Psychopathology, 9*(1), 43-58.

Stormshak, E. A., Bierman, K. L., McMahon, R. J., & Lengua, L. J. (2000). Parenting practices and child disruptive behavior problems in early elementary school. *Journal of Clinical Child Psychology, 29*(1), 17-29.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics.* Boston: Allyn and Bacon.

Taylor, C. A., Manganello, J. A., Lee, S. J., & Rice, J. C. (2010). Mothers' spanking of 3-year-old children and subsequent risk of children's aggressive behavior. *Pediatrics, 125*(5), e1057-e1065.

Thomas, R., & Zimmer-Gembeck, M. J. (2007). Behavioral outcomes of Parent-Child Interaction Therapy and Triple P-Positive Parenting Program: A review and meta-analysis. *Journal of Abnormal Child Psychology, 35*(3), 475-495.

Tiano, J. D., & McNeil, C. B. (2005). The inclusion of fathers in Behavioral Parent Training: A critical evaluation. *Child & Family Behavior Therapy, 27*(4), 1-28.

Tremblay, R. E. (2000). The development of physical aggression from birth to adulthood: A bio-psycho-social perspective. *International Journal of Psychology, 35*(3-4), 204-204.

Tremblay, R. E. (2004). Decade of behavior distinguished lecture: Development of physical aggression during infancy. *Infant Mental Health Journal, 25*(5), 399-407.

Tremblay, R. E. (2006). Prevention of chronic physical aggression: An epigenetic perspective. *Crime and Schizophrenia: Causes and Cures*, 267-286

Tremblay, R. E. (2010). Developmental origins of disruptive behaviour problems: The original sin hypothesis, epigenetics and their consequences for prevention. *Journal of Child Psychology and Psychiatry, 51*(4), 341-367.

Tremblay, R. E., Japel, C., Perusse, D., McDuff, P., Boivin, M., Zoccolillo, M., et al. (1999). The search for the age of 'onset' of physical aggression: Rousseau and Bandura revisited. *Criminal Behaviour and Mental Health, 9*, 8-23.

Tremblay, R. E., Nagin, D. S., Seguin, J. R., Zoccolillo, M., Zelazo, P. D., Boivin, M., et al. (2004). Physical aggression during early childhood: Trajectories and predictors. *Pediatrics, 114*(1), E43-E50.

Trentacosta, C. J., Hyde, L. W., Shaw, D. S., Dishion, T. J., Gardner, F., & Wilson, M. (2008). The relations among cumulative risk, parenting, and behavior problems during early childhood. *Journal of Child Psychology and Psychiatry, 49*(11), 1211-1219.

Tucker, S., Gross, D., Fogg, L., Delaney, K., & Lapporte, R. (1998). The long-term efficacy of a behavioral parent training intervention for families with 2-year-olds. *Research in Nursing & Health, 21*, 199-210.

Turner, K. M. T., Markie-Dadds, C., & Sanders, M. R. (2010). *Facilitator's manual for Group Triple P (3rd ed.)*. Brisbane, QLD, Australia: Triple P International Pty. Ltd.

Turner, K. M. T., Richards, M., & Sanders, M. (2007). A randomised clinical trial of a group parent education program for Australian Indigenous families. *Journal of Pediatrics and Child Health, 43*, 429-437.

Turner, K. M. T., & Sanders, M. R. (2006). Help When It's Needed First: A Controlled Evaluation of Brief, Preventive Behavioral Family Intervention in a Primary Care Setting. *Behavior Therapy, 37*(2), 131-142.

United Nations Office Drugs and Crime. (2009). *Guide to Implementing Family Skills Training Programmes for Drug Abuse Prevention*. New York: United Nations

van Beijsterveldt, C., Bartels, M., Hudziak, J., & Boomsma, D. (2003). Causes of Stability of Aggression from Early Childhood to Adolescence: A Longitudinal Genetic Analysis in Dutch Twins. *Behavior Genetics, 33*(5), 591-605.

Van Zeijl, J., Mesman, J., Van IJendoorn, M. H., Bakermans-Kranenburg, M. J., Juffer, F., Stolk, M. N., et al. (2006). Attachment-based intervention for enhancing sensitive discipline in mothers of 1-to 3-year-old children at risk for externalizing behavior problems: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*(6), 994-1005.

Verhoeven, M., Junger, M., van Aken, C., Dekovic, M., & van Aken, M. A. G. (2010). Parenting and children's externalizing behavior: Bidirectionality during toddlerhood. *Journal of Applied Developmental Psychology, 31*(1), 93-105.

Vittrup, B., Holden, G. W., & Buck, J. (2006). Attitudes Predict the Use of Physical Punishment:A Prospective Study of the Emergence of Disciplinary Practices. *Pediatrics, 117*(6), 2055-2064.

Waschbusch, D. A. (2002). A meta-analytic examination of comorbid hyperactive-impulsive-attention problems and conduct problems. *Psychological Bulletin, 128*(1), 118-150.

Wakschlag, L. S., Briggs-Gowan, M. J., Carter, A. S., Hill, C., Danis, B., Keenan, K., et al. (2007). A developmental framework for distinguishing disruptive behavior from normative misbehavior in preschool children. *Journal of Child Psychology and Psychiatry, 48*(10), 976-987.

Webster-Stratton, C. (2005). Aggression in young children: Services proven to be effective in reducing aggression. In Tremblay RE, Peters RDeV (Eds.), Encyclopedia on Early Childhood Development [online]. Available from http://www.child-encyclopedia.com/documents/Webster-StrattonANGxp_rev.pdf.

Webster-Stratton, C., & Hammond, M. (1997). Treating children with early-onset conduct problems: A comparison of child and parent training interventions. *Journal of Consulting and Clinical Psychology, 65*, 93-109.

Webster-Stratton, C., & Reid, M. J. (2003). The Incredible Years Parents, Teachers and Child Training Series: A multifaceted treatment approach for young children with conduct problems. In A. E. Kazdin & J. R. Weisz (Eds.), *Evidence-based Psychotherapies for Children and Adolescents* (pp. 224-240). New York: Guilford.

Wilson, P., Rush, R., Hussey, S., Puckering, C., Sim, F., Allely, C. S., et al. (2012). How evidence-based is an 'evidence-based parenting program'? A PRISMA systematic review and meta-analysis of Triple P *10*, 130.

World Health Organisation. (2009). Preventing violence through the development of safe, stable and nurturing relationships between children and their parents and caregivers. Seriesof briefings on violence prevention: The evidence. Geneva: Switzerland.

Zubrick, S. R., Silburn, S. R., Garton, A. F., Dalby, R., & Carlton, J. (1995). *Western Australian Child Health Survey: Developing Health and Well Being in the '90s (Catalogue 4303.5)*. Perth: Australian Bureau of Statistics.

APPENDIX A

Perceived Demands of the Intervention Scale

How easy/difficult was the information in the parenting program to understand?

5	4	3	2	1
Extremely difficult and confusing	A little difficult and confusing	Neutral	Mostly easy and not confusing	Extremely easy and not at all confusing

How easy/difficult was participation in the parenting program for your family in terms of:

a. Your time involved in attending the program

5	4	3	2	1
Extremely difficult and demanding	A little difficult and demanding	Neutral	Mostly easy and undemanding	Extremely easy and undemanding

c. Time involved in completing homework tasks

5	4	3	2	1
Extremely difficult and demanding	A little difficult and demanding	Neutral	Mostly easy and undemanding	Extremely easy and undemanding

d. Transport to Sydney University to participate in the program

5	4	3	2	1
Extremely difficult and demanding	A little difficult and demanding	Neutral	Mostly easy and undemanding	Extremely easy and undemanding

e. Arranging childcare in order to participate in the program

5	4	3	2	1
Extremely difficult and demanding	A little difficult and demanding	Neutral	Mostly easy and undemanding	Extremely easy and undemanding

APPENDIX B

University of Sydney HREC Approval Letter

RESEARCH INTEGRITY
Human Research Ethics Committee
Web: http://sydney.edu.au/ethics/
Email: ro.humanethics@sydney.edu.au

Address for all correspondence:
Level 6, Jane Foss Russell Building - G02
The University of Sydney
NSW 2006 AUSTRALIA

Ref: IM/PR

Thursday, 19 August 2010

Dr Caroline Hunt
School of Psychology
Brennan MacCallum Building - A18
The University of Sydney
Email: caroline.hunt@sydney.edu.au

Dear Dr Hunt

Thank you for your correspondence dated 23 July 2010 addressing comments made by the Human Research Ethics Committee (HREC). The Executive Committee of the HREC, at its meeting of 17 August 2010, considered this information and approved the protocol entitled **"Efficacy of brief and standard Behavioural Family Intervention for Toddler Aggression"**.

Details of the approval are as follows:

Protocol No.: **12989**

Approval Period: **August 2010 to August 2011**

Authorised Personnel: **Dr Caroline Hunt**
Ms Lucy Tully
Dr Maree Abbott

Documents approved:

Advertisement, amended 23.7.2010
Parental Information Statement, Version 2 23..2010
Parental (or Guardian) Consent Form
Parental (or Guardian) Consent Form – Consent to show videotaped observation in presentations
Information Brochure
Toddler Positive Parenting (ToPP) Study – Assessment Booklet One
Toddler Positive Parenting (ToPP) Study – Videotaped Play Task Procedures
Telephone Screening Checklist
Telephone Script
Family Background Questionnaire
Standard Triple P Intake Interview Form
Invitation Letter
Response to Email Enquiries
Mother-Child Play Task Observation System (Mother-Child PTOS) Manual
Quick Summary of Mother-Child Play Task Observation System (Mother-Child PTOS)
Mother-Child Play Task Observation System (Mother-Child PTOS) – Mother Interaction Codes
Mother-Child Play Task Observation System (Mother-Child PTOS) – Child Interaction Codes

Human Ethics Secretariat:
Ms Portia Richmond T: +61 2 8627 8171 E: portia.richmond@sydney.edu.au
Ms Patricia Engelmann T: +61 2 8627 8172 E: patricia.engelmann@sydney.edu.au
Ms Kala Retnam T: +61 2 8627 8173 E: kala.retnam@sydney.edu.au

ABN 15 211 513 464
CRICOS 00026A

APPENDIX C

Variables transformed due to non-normality

Logarithmic transformations:

Pre-assessment:

- Mother DASS21 Depression, DASS21Anxiety
- Partner DASS21 Depression, DASS21 Anxiety.
- Observed aversive parenting.

Post-assessment:

- Mother DASS21 Depression, DASS 21 Anxiety, Parenting Scale Overreactivity
- Partner: DASS21 Depression, DASS21 Anxiety, DASS21 Stress.
- Observed aversive parenting, observed aversive child behaviour.

Six month follow-up:

- Mother PA-SEC, DASS21 Depression, DASS21 Anxiety, DASS21 Stress
- Partner DASS21 Depression, DASS21 Anxiety, DASS21 Stress.
- Observed aversive child behaviour

Inverse logarithmic transformations

Pre-assessment: partner RQI

Six month follow-up: mother RQI

Inverse square root transformations

Pre-assessment: partner PTC

Post-assessment: mother PTC

Appendix D – CONSORT 2010 checklist of information to include in randomised controlled trials

Section/Topic	Item No	Checklist item	Reported in:
Title and abstract			
	1a	Identification as a randomised trial in the title	Title of Chapter 4
	1b	Structured summary of trial design, methods, results, and conclusions (for specific guidance see CONSORT for abstracts)	Abstract
Introduction			
Background and objectives	2a	Scientific background and explanation of rationale	Chapters 1, 2 & 4
	2b	Specific objectives or hypotheses	Chapter 4
Methods			
Trial design	3a	Description of trial design (such as parallel, factorial) including allocation ratio	Chapter 4
	3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons	No changes to methods
Participants	4a	Eligibility criteria for participants	Chapter 4
	4b	Settings and locations where the data were collected	Chapter 4
Interventions	5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered	Chapter 4
Outcomes	6a	Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed	Chapter 4
	6b	Any changes to trial outcomes after the trial commenced, with reasons	No changes to outcomes

Section/Topic	Item No	Checklist item	Reported in:
Sample size	7a	How sample size was determined	Chapter 4
	7b	When applicable, explanation of any interim analyses and stopping guidelines	No interim analyses or stopping guidelines
Randomisation:			
Sequence generation	8a	Method used to generate the random allocation sequence	Chapter 4
	8b	Type of randomisation; details of any restriction (such as blocking and block size)	Chapter 4
Allocation concealment mechanism	9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned	Chapter 4
Implementation	10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions	Chapter 4
Blinding	11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how	Chapter 4
	11b	If relevant, description of the similarity of interventions	Chapter 4, Table 3
Statistical methods	12a	Statistical methods used to compare groups for primary and secondary outcomes	Chapter 4
	12b	Methods for additional analyses, such as subgroup analyses and adjusted analyses	Chapter 4
Results			
Participant flow (a diagram is strongly recommended)	13a	For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analysed for the primary outcome	Chapter 4, Figure 2
	13b	For each group, losses and exclusions after randomisation, together with reasons	Chapter 4, Figure 2

Section/Topic	Item No	Checklist item	Reported in:
Recruitment	14a	Dates defining the periods of recruitment and follow-up	Chapter 4
	14b	Why the trial ended or was stopped	Chapter 4
Baseline data	15	A table showing baseline demographic and clinical characteristics for each group	Chapter 4, Tables 3 & 4
Numbers analysed	16	For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups	Chapter 4
Outcomes and estimation	17a	For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval)	Chapter 4
	17b	For binary outcomes, presentation of both absolute and relative effect sizes is recommended	Chapter 4
Ancillary analyses	18	Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory	Chapter 4
Harms	19	All important harms or unintended effects in each group (for specific guidance see CONSORT for harms)	Information not collected, not applicable
Discussion			
Limitations	20	Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses	Chapter 5
Generalisability	21	Generalisability (external validity, applicability) of the trial findings	Chapter 5
Interpretation	22	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence	Chapter 5

Section/Topic	Item No	Checklist item	Reported in:
Other information			
Registration	23	Registration number and name of trial registry	Trial not registered
Protocol	24	Where the full trial protocol can be accessed, if available	Available from author
Funding	25	Sources of funding and other support (such as supply of drugs), role of funders	No funding