A Randomized Controlled Trial Evaluating an Online Parenting Programme for Parents of Preschool-Aged Children with Hyperactive/Inattentive Behaviour Difficulties

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Abstract

Parent-child relationships of pre-school aged children with hyperactive/inattentive behaviour problems are often difficult, leading to parenting stress and negative parent-child interactions. By intervening early it may be possible to reduce some of the poor long-term outcomes associated with these early behaviour difficulties, such as exacerbation of ADHD symptoms and relationship problems with family, teachers, and peers. No online self-help parenting programme has been tested in this population. Online delivery may decrease the burden on clinicians, while meeting the need for parenting services. This study investigated the efficacy of the self-administered, online version of Triple P Positive Parenting Program, which consists of eight modules, with two added telephone consultations with a qualified Triple P facilitator. Semi-structured interviews were conducted with a subsample of 11 parents to gain a more in-depth understanding pf parents experience with using the online parenting programme.

In the first part of the study a randomized control design, with an intervention condition (*n* = 27) and a delayed intervention condition (*n* = 26), was used to test the efficacy of Triple P online in a total sample of 53 parents of three to four year old children with hyperactive/inattentive behaviour difficulties. Participant selection was based on elevated levels of child hyperactivity/inattentiveness according to parent report on the Werry-Weiss-Peters Activity Rating Scale (age range 6 to 18; WWP; Routh, 1978) as well as interviewer ratings of inattention and hyperactivity on the Parental Account of Children's Symptoms Interview (PACS; Taylor, Sandberg, Thorley, & Giles, 1991). Questionnaire data on child behaviour, parenting, parent mental health, and parenting efficacy were collected at three different time points (pre-intervention, post-intervention, and six-month follow-up). With regard to child behaviours, mother- and father-ratings on inattention/hyperactivity, defiance/aggression, and social functioning were collected, as well as mother-ratings of restlessness/impulsivity and teacher-ratings of child hyperactivity, peer problems, and prosocial behaviour. At post-intervention, results indicate that in comparison to the delayed intervention group, the intervention group showed significant improvements in child inattention/hyperactivity, restlessness/impulsivity, social functioning, and prosocial behaviour, as well as significant improvements in parental overreactivity, verbosity, positive parenting, stress, depression, parenting satisfaction, and parenting self-efficacy. At the six-month follow-up the intervention group showed greater improvements in overreactivity, verbosity, anxiety, stress, depression, satisfaction, and self-efficacy.

The second part of the study comprised semi-structured post-intervention interviews with a subsample of 11 families to evaluate parents' experience and satisfaction with using the online parenting programme. Thematic analysis of the interview data revealed a number of barriers and facilitators to using and completing the programme. Time constraints were the most frequently mentioned barrier, followed by lack of partner involvement and the linearity of the programme. Programme content, particularly parenting information and parenting skills, was the most often cited facilitator, followed by programme format such as videos demonstrating parenting strategies and the engaging activities provided. The analysis also showed that parents were regularly using strategies taught by the programme, such as being consistent with discipline, remaining calm, and having logical consequences for misbehaviour. In addition, all parents had noticed improvements in at least two

hyperactive/inattentive child behaviours. These included being better able to follow instructions, more on task behaviour, like independent play, and reductions in restless behaviour, for instance, staying seated at mealtimes. Key implications of the study findings include evidence for the usefulness of online self-help as a first-step-approach in treating preschool hyperactivity, including the increase in parental self-efficacy and the decrease in parental laxness, both associated with child hyperactivity.

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1 LITERATURE REVIEW

Preschool hyperactivity refers to overactive, inattentive, and impulsive behaviour (Sonuga-Barke, Auerbach, Campbell, Daley, & Thompson, 2005). Extreme and impairing expressions of hyperactivity are associated with a range of short- and long-term social, emotional and cognitive difficulties. During early childhood language and cognitive delays may be present along with executive function difficulties, pre-academic skill deficits, and problems in the peer group (for a review see Campbell, Halperin & Sonuga-Barke, 2014). In addition, pre-schoolers with hyperactivity are at risk of developing attention deficit hyperactivity disorder (ADHD) that persists through middle childhood and adolescence (Lee, Lahey,Owens, & Hinshaw, 2008; Pierce, Ewing, & Campbell, 1999). Children with ADHD are often rejected by peers (Hoza, 2007; Keown, 2012), exhibit impairment at school (e.g. a delay in maths and reading skills; difficulty working independently or in groups; disruptive behaviour; and failure to follow routines) (Campbell, Halperin, & Sonuga-Barke, 2014; Schmiedeler & Schneider, 2014) and are at risk for delinquency (Mannuzza, Klein, Bessler, Malloy, & LaPadula, 1998) and substance abuse in adolescence (Lee, Humphreys, Flory, Liu, & Glass, 2011). These poor short- and long-term outcomes highlight the importance of early intervention to try and ensure that pre-schoolers displaying hyperactive/inattentive behaviours can develop optimally.

The aim of this chapter is to provide an overview of the literature about the nature of preschool hyperactivity and a review of the research on relevant parenting interventions. The first section of the chapter discusses definition and measurement issues relating to preschool hyperactivity and ADHD, and describes current knowledge about the aetiology of ADHD. This is followed by a discussion about the role of family factors, including parenting, parenting stress and parenting efficacy, in the developmental course of hyperactive/inattentive behaviours. Next, the programme efficacy of face-to-face parent training interventions targeting preschool hyperactivity is reviewed. Subsequently, findings from self-administered parent training interventions are discussed with a view to illustrating the applicability of self-help parenting programmes for parents of children with preschool hyperactivity. After this, associated impairments and comorbid behaviours are discussed, including how symptoms of parental ADHD may impact parenting practices. Lastly, the need to obtain in depth data about programme implementation and satisfaction is examined.

1.1 Definition and Measurement of Preschool Hyperactivity and Attention Deficit Hyperactivity Disorder

There are two major approaches to defining and measuring hyperactive/inattentive behaviour problems in preschool and school-age children. The first is the mental disorder (MD) perspective, which includes schemes (DSM-5; American Psychiatric Association, 2013; ICD-10; World Health Organization, 2004) for mental health professionals to provide a clinical diagnosis of ADHD. According to DSM-5, ADHD refers to a pattern of inattention, hyperactivity, and impulsivity, incompatible with a

child's developmental stage. Criteria for a diagnosis include the presence of a minimum of six symptoms of hyperactivity/impulsivity (e.g. fidgeting, talking excessively, difficulty waiting in turn), or six symptoms of inattention (e.g. low task persistence, making careless mistakes, not listening when spoken to directly) (Tarver, Daley, & Sayal, 2014). In addition, in order to receive a diagnosis, these symptoms must have onset before the age of 12, must be apparent across different settings (i.e. at home and at school), and must be associated with substantial impairment in functioning (American Psychiatric Association, 2013).

In contrast to the mental disorder perspective's binary classification of symptoms being either present or absent, the developmental psychopathology approach views hyperactivity/inattention as occurring on a continuum from none to extreme. With this descriptive, dimensional approach, standardized rating scales or questionnaires completed by parents, teachers, or clinicians, are used to assess how extreme hyperactive/inattentive behaviours are in comparison to other children of the same age (Achenbach, 2014). The developmental psychopathology perspective focusses on specifying the developmental pathways associated with hyperactivity/inattention (Sonuga-Barke et al., 2005).

There are several limitations of using mental disorder criteria to assess ADHD in preschool children, including the failure to describe early signs, such as high levels of reactivity and low levels of regulation and attention, displayed by this younger age-group (Campbell & Von Stauffenberg, 2009). Furthermore, no guidelines exist to what constitutes substantial impaired functioning, preventing uniform diagnosis and accurate intervention (Healey, Miller, Castelli, Marks, & Halperin, 2008). As Campbell et al. (2014) point out emphasis on impairment and social context is especially important when assessing ADHD in young children. In addition, the DSM criteria were developed for use with children over the age of five years, and with adolescents. Although preschool hyperactivity shares many of the same symptoms as ADHD (e.g. not listening, difficulty waiting in turn), the diagnostic criteria may not be appropriate for use with preschool-aged children (Sonuga-Barke et al., 2005). Indeed, many hyperactive/impulsive behaviours that contribute to a clinical diagnosis, such as difficulty awaiting their turn, sitting still, and playing quietly, may be typical for preschool aged children, Furthermore, these behaviours are often short-lived, as the preschool period is characterized by great changes in regulatory abilities (Campbell, 2006).

Sonuga-Barke and Halperin (2010) acknowledge the risk of over-pathologization and suggest that a developmental perspective rather than a mental disorder perspective would minimize this risk, while acknowledging the clinical significance of elevated, but non-diagnostic hyperactivity. A developmental approach also allows detection of early emerging symptoms of ADHD, such as low levels of regulation (Nigg, Goldsmith, & Sachek, 2004), and acknowledges the interplay between different causal factors (Campbell et al., 2014).

Researchers who use a dimensional approach to identify and measure extreme levels of hyperactivity often use a two stage approach, which combines a behaviour screening questionnaire and clinical interview measure with cut-off scores applied. This combined approach overcomes a limitation of using questionnaires, which is the risk of respondents misinterpreting the questions,

leading to overestimation of the reported behaviour (Danckaerts & Taylor, 1995). To minimize this bias, researchers often make use of both questionnaire and interview methods. The first step generally entails using a self-report questionnaire to identify high scoring subjects. Easy administration and the low burden on participants are some advantages of using questionnaires. To improve measurement precision, the second step involves using a structured or semi-structured interview. Although interviews are time consuming, they allow parents to describe their child's behaviour in detail across different settings, which an interviewer can then rate for frequency and severity using operationalized criteria (Danckaerts & Taylor, 1995). Thus interview measures, such as the Parental Account of Children's Symptoms (PACS; Taylor et al., 1991) provide more in-depth information than questionnaires, and have good construct validity and good inter-rater reliability (Schachar, 1991). Screening for hyperactivity/inattention in preschool aged children using both a questionnaire and a semi structured interview combines the advantages of both types of measures and will likely result in a sample of pre-schoolers with elevated levels of these early behaviour difficulties. A number of studies have successfully used this two-stage process to screen for extreme and impairing levels of preschool hyperactivity/inattention (Keown, 2011; Keown & Woodward, 2002; Sonuga-Barke, Daley, Thompson, Laver-Bradbury, & Weeks, 2001; Thompson et al., 2009).

The current study uses a dimensional approach, incorporating a behaviour questionnaire and a semi-structured interview with cut-off scores to screen and identify pre-schoolers with elevated and impairing levels of hyperactivity/inattention. As far as possible, for the purpose of this research, the term ADHD is used for children with a clinical diagnosis and the term hyperactivity/inattention is used when describing these behaviours from a developmental, dimensional perspective. The term ADHD is also used in relation to preschool samples to reflect the terminology used in the literature that is reviewed.

1.1.1 Prevalence and continuity of preschool hyperactivity

The prevalence rates for preschool hyperactivity/inattention vary according to whether the mental disorder approach or the developmental psychopathology approach to measurement is used. This point is illustrated by the results of a review comparing community studies that used DSM criteria to measure ADHD symptoms in preschool aged children (Egger, Kondo, & Angold, 2006). When using symptom checklists, the prevalence rate of hyperactivity/inattention ranged from 6 to 18.3%, while the rate for a diagnosis of ADHD ranged from 2 to 7.9%. Possible explanations for the wider prevalence rates when dimensional measures are used may be the variation in rating scales, the type of informants, or in the criteria used to specify extreme levels of behaviour (e.g. top 5%; top 10%). Egger et al. suggest that although it is common for preschool aged children to display one or two symptoms of ADHD, it is well outside the normal range for preschool to exhibit multiple symptoms.

According to Campbell et al (2014) about fifty percent of preschool aged children with clinically significant behaviour problems, including but not limited to hyperactive/ inattentive behaviours, may continue to display problem behaviour beyond the preschool years. Once the problems persist through school entry, they become more difficult to address (Pierce, Ewing, & Campbell, 1999). Several recent

longitudinal studies have reported continuity rates in ADHD symptoms, from preschool age to school age, ranging from 53.8% to 89% (Harvey & Arnold, 2013; O'Neill, Schneiderman, Rajendran, Marks, & Halperin, 2014; Riddle et al., 2013; Schmiedeler & Schneider, 2014). For example, in an examination of early indicators of ADHD in two cohorts of hard-to-manage three year old boys, Pierce et al. (1999) found that approximately half of the Cohort 1 boys continued to display behaviour difficulties at school entry, aged six. Of these boys, 67% met the DSM-3 criteria for an externalising disorder at age nine, as measured by a structured diagnostic interview. In the second cohort 30% of the boys showed problematic behaviours at school entry, using multiple informants across different settings (e.g. at home and at school).

In a more recent study, using parent and teacher ratings on the German short version of the Conners Parent Rating Scale (CPRS; Conners, 1994) to measure ADHD symptoms in a sample of 793 children (*M* age = 4.8 years), Schmiedeler and Schneider (2014) obtained inter-correlations between two consecutive assessments, nine months apart ranging from $r = .60$ (parents) to $r = .69$ (teachers). Lower stability rates (moderate) were found when using a mental disorder approach, by means of the FBB-ADHS-5 (Döpfner, Görtz, & Lehmkuhl, 2006), a German symptom checklist, which is part of a diagnostic system for mental disorders.

1.1.2 Aetiology of ADHD

With an estimated heritability rate between 70 and 80% (Asherson & Trzaskowski, 2015; Burt, 2009; Faraone et al., 2005), ADHD is highly heritable. No particular gene can be singled out explaining this disorder and it is suggested that the genetic risk of ADHD consists of several genetic variants, including the presence of certain dopamine receptors (DRD4 and DRD5) (Burmeister, McInnis, & Zollner, 2008), dopamine transporters (DAT1), and the serotonin transporter (5HTT) (Tarver et al., 2014). The influence of single genes appears to be limited, suggesting complex gene-interactions (Daley, Jacobsen, Lange, Sørensen, & Walldorf, 2014).

Gene-environment interactions could also explain the limited effect of single genes on the development of ADHD and could explain the difference in susceptibility to environmental factors between children with similar genetic risk (Wermter et al., 2010). ADHD has been associated with a range of pre and postnatal environmental risk factors, such as exposure to lead and maternal smoking during pregnancy, although the direction of these associations often remains unclear (Campbell et al., 2014; Thapar, Cooper, Eyre, & Langley, 2012). Family factors such as parenting and family stress may also be involved in the developmental course of ADHD and denote examples of gene-environment interaction. For example, hyperactive/inattentive behaviours may elicit negative, intrusive responses from parents, thus creating a negative cycle of parent-child interactions. This negative cycle may exacerbate patterns of impairment in children displaying ADHD symptoms (Seipp & Johnston, 2005), but whether it induces ADHD, alters the developmental course of the disorder, or leads to the emergence of comorbid social problems remains to be determined (Campbell et al., 2014). Regardless of how these problems originated, parenting interventions, apart from potentially reducing core symptoms of ADHD, provide support for the relevance of positive parenting and limit-setting (Campbell

et al., 2014). Early intervention may interrupt the negative cycle and prevent the establishment of behavioural patterns that exacerbate patterns of impairment and negative parental attitudes (Sonuga-Barke, Koerting, Smith, McCann, & Thompson, 2011).

Sonuga-Barke et al. (2005) devised a model with four hypothetical developmental pathways involving preschool hyperactivity from risk to ADHD to be used as a framework to guide future research. These hypothetical pathways encompass the potential moderating and mediational influence of a range of within child and family contextual factors associated with the continuity or discontinuity of the disorder (Campbell et al., 2014). Two of the developmental pathways of relevance to this thesis are the preschool limited ADHD pathway and the early onset pathway. The preschool limited ADHD pathway is characterized by significant preschool hyperactivity and moderate to high risk. This pathway to ADHD may be interrupted by protective environmental factors such as proactive, firm limit-setting at home and a well-structured classroom (Sonuga-Barke et al., 2005). In the early onset pathway, a combination of extreme risk, severe preschool hyperactivity, and an explosive temperament interact to lead to early onset, chronic ADHD and oppositionality. The persistence of these problem behaviours is exacerbated by coercive parent-child relationships (Tarver et al., 2014).

1.2 Associations between Parenting and Preschool Hyperactivity

The results from recent cross-sectional and longitudinal studies of preschool children with hyperactivity provide support for the possibility that the nature and quality of parent-child relationships may have the potential to facilitate the continuity or discontinuity of hyperactive/inattentive behaviours. For example, a cross-sectional study by Keown and Woodward (2002), found that maternal disciplinary laxness and less efficient coping with child problem behaviour were associated with preschool hyperactivity, following statistical adjustment for the effects of conduct problems. In a later cross-sectional study in the US by Goldstein, Harvey, and Friedman-Weieneth (2007), parents of hyperactive pre-schoolers showed less warmth and negative affect and more lax parenting than parents of normally developing pre-schoolers. Keown (2011) also found that maternal warmth was associated with preschool hyperactivity as well as lower levels of parenting satisfaction, after adjustment for the effects of conduct problems.

While these cross-sectional studies provide evidence for the association between parenting and preschool hyperactivity, longitudinal designs provide stronger support for possible pathways between parenting and hyperactive/inattentive behaviours. One example is a study by Olson, Bates, Sandy and Schilling (2002), who found dysfunctional parent-child interaction in the first two years of life predicted children's later impulsivity at age 8 years. Another example is a follow-up study by Keown (2012), examining preschool parenting predictors of ADHD. Less maternal warmth and sensitivity at age of 4 years predicted higher levels of hyperactive-impulsive behaviour 3 years later. These predictions held after statistical adjustment for the effects of preschool hyperactive/inattentive behaviours and conduct problems.

1.2.1 Parenting Stress, Parenting Efficacy and Child ADHD

A large body of literature exists showing an association between child ADHD symptoms and parenting stress and reduced self-efficacy (Deault, 2010; Johnston & Mash, 2001). As demonstrated in section 1.1.2, having a child with ADHD symptoms may impose additional challenges to families, increasing the amount of parental stress. Elevated levels of parental stress is thought to disrupt the parent-child relationship and to negatively affect parenting practices (McKelvey, Fitzgerald, Schiffman, & Von Eye, 2002; Rodgers, 1998). The association between child ADHD symptoms and parenting stress appears to exist above and beyond comorbid behaviour difficulties (Podolski & Nigg, 2001), and has been established as early as the preschool years (Beernink, Swinkels, van der Gaag, & Buitelaar, 2012). In this Dutch study, Beernink et al. (2012) found an interaction effect between child hyperactivity/inattention at 14 and 21 months and parenting stress at 21 months in a sample of 107 children. In another Dutch study examining factors predicting stability of ODD and ADHD symptoms in 251 preschool aged children, Bunte, Schoemaker, Espy, van der Heijden, and Matthys (2014) found an association between parental stress and ADHD symptoms. Further evidence for the link between child ADHD symptoms and parental stress is illustrated by the results of parenting interventions for families of school-age children with ADHD that have specifically targeted parenting stress or examined changes in parenting stress following participation in a behavioural family intervention. For example, in a New Zealand randomized control trial by Treacy, Tripp, and Baird (2005) intervention group mothers children with ADHD who completed a 9-week parent stress management showed significant reductions in parenting stress and improvements in effective parenting practices. A second example is a US study by Heath, Curtis, Fan, and McPherson (2015) who investigated the association between parenting stress and change in child ADHD symptoms following participation in a parenting programme, and found that a clinically significant reduction in child ADHD symptoms was accompanied by a reduction in self-reported parenting stress.

Self-efficacy can be defined as parents' beliefs about their competence and confidence in parenting (Heath et al., 2015). In the face of additional challenges associated with having a child with ADHD, parents may feel less competent in their role as a parent than parents of children who do not have ADHD (Primack et al., 2012). Parents who show greater self-efficacy appear to be more effective in their parenting as compared to parents with lower levels of self-efficacy (McLaughlin & Harrison, 2006). In support of this point, a study by Johnston, Mah, and Regambal (2010) in a sample of 101 five to ten year old children with ADHD found that mothers high in self-efficacy reported greater willingness to use newly taught strategies, higher liking of the strategies, and more positive reactions to behavioural strategies than mothers low in self-efficacy. High self-efficacy in this study predicted positive treatment outcome.

1.3 Parent Training Interventions Targeting Preschool ADHD

As discussed in section 1.2.1, given the impact of parenting stress, and parenting self-efficacy on the parenting and the parent-child relationships of children with ADHD symptoms it is important to examine the extent to which these aspects of parent well-being have been successfully targeted in parenting interventions for preschool hyperactivity/inattentiveness. Additionally, as reviewed in section

1.2, the nature and quality of the parent-child relationship and parenting practices, including parental warmth, disciplinary laxness and parenting satisfaction are important to target in parenting interventions for preschool hyperactivity/inattention and the following review will investigate the degree to which this has occurred and what the findings were.

In the next section several key parent training interventions that have targeted the preschool equivalent of ADHD are reviewed, including the New Forest Parenting Programme (Weeks, Thompson, & Laver-Bradbury, 1999), the Triple P Positive Parenting Program (Sanders, Markie-Dadds, & Turner, 1998b), Parent-Child Interaction Therapy (Eyberg & Robinson, 1982), and the Incredible Years (Webster-Stratton, Reid, & Beauchaine, 2011). The review starts with face-to-face interventions, and is followed by self-help interventions.

1.3.1 Face-to-face interventions: Individual delivery

New Forest Parenting Programme (NFPP). The New Forest Parenting Programme (Weeks et al., 1999) is designed to address the core symptoms of ADHD. The NFPP is informed by key aetiological theories of ADHD and consists of eight individual one-hour sessions delivered by a trained therapist (Daley, Jones, Hutchings, & Thompson, 2009). The NFPP combines behaviour management techniques with therapeutic elements (e.g. games), to tackle cognitive dysregulation and inhibitory dysfunction and to teach strategies to reduce delay aversion. Parenting behaviours targeted include clear communication, consistency, eye contact, use of short sentences, praise, remain calm, and scaffolding (Thompson et al., 2009).

An early example of a randomized controlled trial to examine the efficacy of NFPP on child ADHD symptoms was conducted in the UK by Sonuga-Barke et al. in 2001 with a sample of 78 parents of three year old children. The sample was selected using a two stage screening process involving the Werry-Weiss-Peters Activity Rating Scale (WWPARS; Routh, 1978) and the Parental Account of Child Symptoms (PACS; Taylor et al., 1991), an interview measure of ADHD symptoms. The PACS data was also collected at post-intervention and at 15-week follow-up. At post-intervention there was a significantly greater decrease in child ADHD symptoms and increase in mother-reported well-being for the NFPP group compared to the waitlist control group. These effects sustained for 15 weeks after treatment. A limitation of this study was the lack of child behaviour data from an informant in another setting, such as a preschool teacher. Information by the teacher may have validated mothers' reports of the child's ADHD symptoms and indicated whether the effect of the intervention on the child's behaviour generalized to settings outside the home (Sonuga-Barke et al., 2001).

A later small scale randomized control study by Thompson et al. (2009) used the PACS (Taylor et al., 1991) and the Werry-Weiss-Peters Activity Rating Scale (Routh, 1978) both as a screening measure and to measure intervention effects on ADHD symptoms in 30 children between the age of 30 and 77 months. Compared to the control group, the intervention group showed a significantly greater decrease in problematic child behaviour as measured by both the WPP Scale and the PACS. Other intervention effects included an increase in maternal positive comments and a decrease in negative comments about the target child as measured by the Preschool Five-Minute Speech Sample (PFMSS;

Daley, Sonuga-Barke, & Thompson, 2003), All of these effects were maintained at seven weeks post-treatment. While these findings are promising the major shortcomings of this study were a small sample size and the short length of follow-up time.

More recently, a randomized controlled trial was conducted in the US by Abikoff et al. (2014) comparing the NFPP to an established parenting intervention (Helping the non-Compliant Child; HCC; McMahon & Forehand, 2005) and a waitlist control group. The sample comprised 159 three and four year old children with elevated scores on both parent- and teacher-rated measures of hyperactivity/ impulsivity or inattentiveness. Primary outcome variables were parent and teacher ratings of ADHD using the Conners Rating Scales. Secondary outcomes included self-reported parenting practices using the Parenting Practice Interview (PPI; Webster-Stratton, 1998) and parental functioning as measured by the short version of the Parenting Stress Index. Children in the intervention group were followed-up at an average of 7-months post-intervention. Self-reported positive parenting practices, such as clear expectations and appropriate discipline, improved for both interventions and these effects were maintained at follow-up. Parent-reported child ADHD and ODD behaviours improved for both intervention conditions at post-intervention. These effects were only maintained for inattentive behaviours and none of the improvements in child behaviour were supported by teacher ratings. As compared to HCC, the NFPP was not more effective and proved to be even less effective in reducing total ADHD symptoms and hyperactivity/ impulsivity at follow-up. The authors concluded that results refute the claim that NFPP improves ADHD symptoms and related self-regulatory processes by addressing the supposed dysfunctions underlying ADHD.

Triple P – Positive Parenting Program. The Level 4 Standard Triple P programme consists of 10 one-hour sessions, delivered on an individual basis. During the intervention parents are taught 17 core child-management strategies (Sanders, Markie-Dadds, & Turner, 1998a; Sanders et al., 1998b). Of these strategies, ten are aimed at promoting child competence and development and include physical affection, attention and praise. The seven remaining strategies, such as rule setting, directed discussion, effective consequences for misbehaviour, differential reinforcement and time-out, are aimed at promoting effective parental limit-setting and effective management of disruptive child behaviours. The theoretical basis of Triple P is informed by social learning principles, with a focus on the reciprocity of the nature of parent-child interaction (Sanders, 1999, 2012).

Several studies have been conducted to assess the effect of Triple P on ADHD symptoms in preschool children. The first study by Bor, Sanders, and Markie-Dadds (2002) compared two different variants of the Triple P program. Eighty seven parents of three year old children were screened for eligibility to participate using an interview based on DSM-IV (APA, 1994) symptom criteria for ADHD and maternal reports on the Inattentive Behaviour subscale of the Eyberg Child Behaviour Inventory (ECBI; Eyberg & Ross, 1978). The ECBI was also used as an outcome measure for ADHD. The families were randomly assigned to either the standard or the enhanced variant (i.e. designed for parents with concurrent child behaviour problems and family dysfunction) of the programme, or to a waitlist group. Mother-child interactions were observed in the home at three time points (pre-, post-intervention and follow-up), and were coded for negative parent behaviour and negative child behaviour. The results indicated a reduction in mother-reported overall disruptive behaviour and

specifically in inattentiveness, as measured by the ECBI. Post-intervention increases in mother-reported parenting competence were also found for both versions of the programme in comparison with the waitlist control group. The post-intervention effects were maintained at 12 months post-treatment. There were no significant post-intervention differences between the conditions in observed negative parenting and observed child oppositional defiant behaviour and conduct problems. For ethical reasons, the waitlist group was not included in the follow-up assessment. Thus it was not possible to rule out other possible explanations, such as the passage of time, for the maintenance of the intervention effects. Another limitation was the use of the ECBI to measure inattentive child behaviour. The ECBI was developed to measure child conduct problems and the Inattentive Behaviour subscale has been found not to discriminate between children with ADHD and ODD (Weis, Lovejoy, & Lundahl, 2005). Other measures, such as the Conners Early Childhood Behaviour scale, have a more specific focus on hyperactive/inattentive child behaviour and are therefore better suited as an outcome measure of ADHD.

Another study examined the efficacy of the standard version of Triple P with a sample of 83 parents of children between two to 15 years old (mean age 5 years) children exhibiting ADHD symptoms, as measured by the ADHD factor (8 items) of the ECBI (Rogers, Cann, Cameron, Littlefield, & Lagioia, 2003). The ECBI (Robinson, Eyberg, & Ross, 1980). The ECBI ADHD scale was used as a screening instrument to identify children with ADHD symptoms, and was also used as an outcome measure of child ADHD. At post-intervention mothers reported a significant reduction in problem behaviour in their children, a reduction in maternal depression, anxiety and stress, an increase in feelings of satisfaction and competency in parenting and a reduction in parental conflict and in dysfunctional parenting practices (laxness, over-reactivity and verbosity). All measures were based on maternal reports of child behaviour in the home, no ADHD specific measures were used, there was no control group, or post-intervention follow-up.

Parent-child interaction therapy (PCIT). PCIT (Eyberg & Robinson, 1982) is designed for parents of young children with externalizing behaviour problems and comprises two phases. In the first phase the focus lies on strengthening the parent-child attachment, improving the child's social skills, and increasing positive parenting practices. The second phase involves teaching parents certain skills, such as limit-setting, being consistent, and specific skills to reduce noncompliance in their child (Bagner et al., 2009). PCIT has been tested in a Spanish study involving 32 children aged four to six with mother-reported ADHD symptoms (Matos, Bauermeister, & Bernal, 2009). In this study the Disruptive Behavior Scale for Children (DBRS; Barkley, Murphy, & Bauermeister, 1998) was used both as a screening and outcome measure of ADHD. The semi-structured interviews BASC and National Institute of Mental Health Diagnostic Interview Schedule for Children (NIMH DISC; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) were also used as outcome measures of ADHD. This pilot study revealed reductions at post-intervention, in mother-reported child ADHD symptoms on both measures for families in the intervention condition. The results also included an increase in positive parenting practices as measured by the Parent Practices Inventory (PPI; Salas-Serrano, 2003), and a decrease in maternal stress as measured by the Family Experience Inventory (FEI; Bauermeister, Matos, & Reina, 1999). The treatment effects were maintained at the three-and-a-half month follow-up.

1.3.2 Face-to-face interventions: Group interventions

The Incredible Years (IY). The Incredible Years (Webster-Stratton & Hancock, 1998) is a group-based parenting programme and consists of weekly 2.5-hour sessions over a period of twelve weeks (Webster-Stratton et al., 2011). Key features of the IY entail establishing a positive relationship with the child by means of play and child-centred activities, praise, reward, effective limit-setting, clear instruction and strategies for managing non-compliance. The theoretical underpinning is informed by the principles of social learning theory (Daley et al., 2009), with emphasis on the reciprocal relationship between parent and children (Patterson, 1982).

There is increasing evidence that the basic IY programme is an effective intervention for young children with ADHD and comorbid conduct problems (e.g. aggression, disobedience, temper tantrums). For example, one US study by McGoey, DuPaul, Eckert, Volpe, and Brakle (2005) examined the efficacy of the IY programme in conjunction with classroom intervention, and, in some cases, medication in a sample of 57 children aged three to five at risk for ADHD, a third of whom also showed conduct problems. Screening consisted of parent and teacher ratings on the Conners Rating Scale and of a DSM based semi-structured parent interview. Improvements were found in both the intervention condition and the care-as-usual condition and included increased mother-rated child social skills and observed positive parenting. No intervention effects were found for attentional problems. As the intervention group received a classroom intervention, the IY programme, and possibly medication, the post-intervention effects cannot be explained solely by the IY programme.

A study in the UK by Jones, Daley, Hutchings, Bywater, and Eames (2007), examined the efficacy of IY in a sample 79 parents with three-year old children (mean age = 46 months) at risk of developing both ADHD and conduct problems. Participants were selected for the study on the basis of parent reports on the ECBI (scores above the cut-off on either the Problem or the Intensity subscale) and parent-reported hyperactivity using the SDQ subscale (scores above the clinical cut-off). Participants were randomized on a 2:1 basis to either the intervention group or the waitlist control group. The intervention was found to be successful in reducing parent reported ADHD symptoms, as measured by the abbreviated version of the Conners Parent Rating Scale six months after the baseline measurement. The effects on ADHD symptoms remained after controlling for observed child deviant behaviour. The results of a follow-up study of a subsample of 50 children indicated that the effects on child ADHD symptoms were maintained 12 months after baseline. (Jones, Daley, Hutchings, Bywater, & Eames, 2008)

A later US study of 99 four to six year old children with ADHD symptoms with and without risk for later comorbid ODD (Webster-Stratton et al., 2011), examined the effect of the IY programme using the Conners Parent Rating Scale-Revised (CPRS-R; Conners, Sitarenios, Parker, & Epstein, 1998) as an outcome measure of ADHD. Children were included in the study when their parents reported scores above the 95th percentile on the Attention Problems scale of the CBCL and when the children met DSM-IV criteria for hyperactive-impulsive or combined subtype of ADHD on the CSI, and when the child was not on medication to treat ADHD. Approximately half of the children displayed comorbid ODD

symptoms, while the other half displayed ADHD symptoms only. Irrespective of comorbidity, families were randomly assigned to either the immediate treatment or waitlist condition. At post-intervention both fathers and mothers in the intervention group reported an improvement in their child's behaviour in terms of externalizing, hyperactive, inattentive and oppositional problems. Teacher reports indicated a decrease in externalizing behaviours, but no decreases in hyperactive/impulsive or inattentive behaviours, as measured by the teacher version of the Conners Rating Scale. Mother-reported parenting results included less harsh discipline and less use of physical punishment. The strength of this study is the assessment at two different settings (i.e. at home and at school). Limitations of the study are the lack of long-term follow-up and the absence of a comparison in intervention effects between those children with ADHD symptoms only and those with comorbid ODD symptoms.

1.3.3 Efficacy of parent training

As discussed in the previous section, a number of child and parenting behaviours have been successfully targeted by parenting programmes for preschool hyperactivity/inattentiveness. Evidence has been provided for the efficacy of all of the reviewed parent training interventions in terms of their ability to reduce preschool hyperactivity. In addition, a decrease in other deviant child behaviour was found in studies examining the New Forest Parenting Programme (NFPP), the Incredible Years (IY) programme and the Triple P Positive Parenting Program (Triple P). With regard to parenting behaviours associated with preschool hyperactivity, all studies discussed provided evidence for post-intervention improvements in certain areas. A reduction in harsh parenting was observed in a study examining the efficacy of the Incredible Years programme (Webster-Stratton et al., 2011). Improvements in dysfunctional parenting (i.e. laxness, verbosity, overreactivity) were found in one of the Triple P studies (Rogers et al., 2003) and decreases in ineffective parenting were obtained in the study that used Parent Child Interaction Therapy (PCIT) (Matos et al., 2009). Positive parenting was reported to be increased following participation in IY (McGoey et al., 2005) and NFPP (Abikoff et al., 2014; Thompson et al., 2009). Post-intervention reductions in maternal stress were found in a study that used PCIT (Matos et al., 2009) and in one of the Triple P studies (Rogers et al., 2003), which also reported increases in parental self-efficacy and parenting satisfaction, and decreases in parental anxiety and depression. Another Triple P study (Bor et al., 2002) found a positive intervention effect on parental competence.

Across this body of research there are a number of limitations that influence the extent to which reported findings can be accepted as sufficient evidence of programme efficacy. The first limitation, in the majority of these studies is a reliance on the mother as the sole informant about post-intervention child hyperactivity/inattention. The advantage of obtaining data from other sources is that if can be used to validate mothers' reports of the child's hyperactive/inattentive behaviours and to indicate whether the effect of the intervention generalized to settings outside the home. Although one IY study made use of teacher ratings (Webster-Stratton et al., 2011), these ratings did not confirm parent-reported reductions in child hyperactivity. A second limitation is a lack of long-term evidence by the majority of the discussed studies. Long-term follow-up data provides information on whether intervention effects are durable. For example, although the results of three studies indicated that the

NFPP was effective in reducing preschool ADHD symptoms, improving maternal well-being, and increasing positive parenting practices, the follow-up times were very short. A third limitation, as applicable to some of the studies discussed, is the lack of control group. This weakens the study results as, besides treatment effects, other influences, such as maturation, can account for the outcomes. One of the two Triple P studies included in the above review (Bor et al., 2002) had no control group at the 12 month follow-up assessment, and the second study (Rogers et al., 2003) had no control group at all. A fourth limitation applies to the Triple P studies only (Bor et al., 2002; Rogers et al., 2003). These studies measured outcomes in child hyperactivity/inattention by using the ECBI, which does not distinguish between ADHD and conduct problems (e.g. disobedience, aggression, temper tantrums).

Although the studies discussed in section 1.3 provide promising results, the above limitations warrant the need for more research examining parenting training interventions targeting preschool hyperactivity. Ideally, such research should be conducted by using a randomized controlled design, with a large enough sample size to detect medium effect sizes, to make it more likely that any changes following intervention are due to the treatment. There should also be long-term follow-up to test whether any post-intervention effects were maintained. In addition multiple informants should be used to obtain information on child behaviours. Finally, well validated measures should be used to assess preschool hyperactivity.

Another limitation of the research on parenting interventions for ADHD raised by Sonuga-Barke et al. (2013) involves the use of blind assessments made by informants unaware of treatment condition. In their meta-analysis the authors concluded, that when using only blind informants to measure ADHD symptoms, no parenting programme demonstrated significant post-intervention reductions in the core symptoms of ADHD. However, as Pfiffner (2014) argues, it would be a challenge to find informants who are blind to the treatment condition, but sufficiently knowledgeable of the child to be able to rate their behaviour, especially for inattentive behaviours. Although there is increased need for nonbiased measurement, the value of parents and teachers, who have unique knowledge about children's behaviour, should not be dismissed and a multi-informant approach potentially provides more nuanced results of treatment effect (Pfiffner, 2014). In their meta-analysis, Daley, van der Oord, et al. (2014) provide evidence for the efficacy of parenting programmes in reducing a number of negative outcomes other than ADHD symptoms, relating to conduct problems, social functioning, parental self-efficacy, and parenting quality. Daley et al. (2014) concluded that evidence for the success of parenting interventions should not focus merely on ADHD symptom reduction as currently parenting interventions appear to target some outcomes better than medication. Addressing parenting behaviours as soon as children display early symptoms of ADHD may be one way to preventing the development of a full-blown disorder.

With regard to the delivery mode, it is notable that no self-administered parenting programme has been tested for preschool hyperactivity/inattentiveness. Self-help in the current review refers to undertaken steps that are professionally initiated, monitored, guided, or interactive and that are self-administered (Harwood & L'Abate, 2010). Hereafter, self-help parent training programmes will be discussed, followed by an outline regarding the Triple P self-help variants as a suggested parent training intervention suitable to address preschool hyperactivity/inattentiveness.

1.3.4 Self-help parent training interventions

Currently, the New Zealand Ministry of Health provides no clear guidelines for the treatment of preschool hyperactivity, although medication at a lowest effective dose is considered to be an acceptable approach (Ministry of Health, 2001). Parenting interventions are mentioned as an option in case of comorbid oppositionality. In the UK, group-based parenting interventions are recommended by the National Institute for Health and Clinical Excellence to help parents manage preschool children with hyperactivity (O'Brien & Daley, 2011). However, the utility of group-based programmes is limited due to the involved resources, costs, logistical barriers, and time demands on participants, and lack of access to child care (Connell, Sanders, & Markie-Dadds, 1997; Spoth, Redmond, Hockaday, & Shin, 1996). Other barriers to attending therapist-led programmes consist of work and family responsibilities, social-economic disadvantages and transport problems (Kazdin, Holland, & Crowley, 1997). Self-administered programmes are cost and resource-effective and are logistically less a burden on participants, while being more widely accessible and private (Harwood & L'Abate, 2010; O'Brien & Daley, 2011). Utilizing more flexible formats of delivery, while maintaining the evidence-based aspects of a programme, is considered beneficial in optimizing parental engagement in treatment (Miller & Prinz, 1990) and may prevent treatment drop-out (Kazdin et al., 1997).

Besides the barriers related with therapist-led parenting interventions, there is another reason to test the efficacy of self-administered parent training with parents of children at risk of developing ADHD. The prevalence of ADHD creates a need for parenting interventions that exceeds the availability of clinicians and resources (Daley et al., 2009). Implementation of self-help interventions for parents with children with ADHD symptoms would decrease the burden both on parents and on the health system. For the health system, these interventions are more cost- and resource effective, leaving more time for clinicians to concentrate on more complex cases and easing the financial burden of mental health problems (Morawska & Sanders, 2006).

No evaluation of self-help parent training programmes for the specific target group of preschool children with hyperactivity is known to exist, apart from a study evaluating the Incredible Years in a sample of four children diagnosed with ADHD who were aged between seven and twelve years (Walcott, Carlson, & Beamon, 2009). In this study, core and peripheral symptoms of ADHD were measured at pre- and post-intervention by three rating scales and an interview. Three of the four participating children experienced improvements, mostly with regard to the peripheral symptoms (e.g. social and academic functioning). The study involved a very small sample of four children. In addition, these children were simultaneously taking medications, making it difficult to detect intervention effects.

The NFPP has a self-help version in paper format, which could be used to target preschool hyperactivity/inattention. This version has been tested in a randomized controlled trial involving a sample of 43 children (*M* age = 7 years) with ADHD symptoms based on the PACS (Daley & O'Brien, 2013). The results indicated a reduction in ADHD symptoms and an increase in parental competence immediately after completion of the programme. The study did not include an assessment of the long-term intervention effects.

With regard to the efficacy of self-administered parenting interventions, a number of researchers (de Graaf, Speetjens, Smit, de Wolff, & Tavecchio, 2008; Nowak & Heinrichs, 2008; O'Brien & Daley, 2011) have concluded that the outcomes of self-help interventions are very similar to those of therapist-led interventions. In a review (O'Brien & Daley, 2011) examining the efficacy of self-help parent training programmes for children with behaviour disorders, the authors conclude that the outcomes of self-help programmes are similar to those obtained by interventions with more intensive therapist input. In their meta-analysis of 116 studies examining diverse Triple P programmes, Sanders, Kirby, Tellegen, and Day (2014) concluded that, although significant short- and long-term effects were found for all delivery formats across a range of outcomes, the effect sizes differed according to the delivery format. When looking solely at Level 4 interventions, effects on child behaviour were larger for the paper self-directed variant combined with telephone support and for the online variant, in comparison to other delivery formats (i.e. standard, group, self-delivery without telephone support). Effects on parenting practices were smaller for the online and paper self-help versions (with and without telephone support). Effect sizes for parental adjustment were not significant for the online version. For parenting satisfaction and self-efficacy, similar effect sizes were found across all delivery modes, except for a lower effect size for paper self-delivery without telephone support. In the next section the Triple P self-help parenting intervention are discussed.

Triple P self-help. Self-directed Triple P Programs exist in two formats, a written parenting workbook and an online version (TPOL; Turner & Sanders, 2011). The content of the programmes is the same for both formats. Choosing between nine different delivery formats, low and middle-income parents have been reported to favour the internet as a means of receiving parenting information (Love, Sanders, Metzler, Prinz, & Kast, 2013; Metzler, Sanders, Rusby, & Crowley, 2012). In contrast to this finding, Sanders, Dittman, Farruggia, and Keown (2014) did not find significant differences in intervention effects between the two self-help delivery formats in a NZ study. In conclusion, both formats can be used, depending on parental preference. Triple P Online (Turner & Sanders, 2011) is a self-directed, interactive positive parenting programme delivered via the internet. It is an adaption of Level four of the Triple P- Positive Parenting Program.

None of the self-directed programmes have been tested in a sample of preschool aged children at risk of developing ADHD. All of the barriers stated in section 2.3.4 that are related to therapist-led interventions create the need to examine self-administered parent training interventions. Therefore the following review evaluates to what extent the two variants of the self-help Triple P Positive Parenting Program have effectively targeted parenting self-efficacy, parenting stress, and parenting behaviours in preschool samples of with conduct problems, given the relevance of these variables for parenting interventions targeting preschool hyperactive/inattentive behaviour problems .

One study examined the efficacy of the self-directed Triple P Positive Parenting Program in a community sample (n = 24) of parents of oppositional children (age: 2-6 years) living in rural and remote areas (Connell et al., 1997). All participating parents reported disruptive child behaviour in the clinical range on the ECBI. The intervention consisted of therapist assisted self-help, including ten weekly telephone calls of 20 minutes each and a written parenting workbook. Compared with the waitlist control group, parents in the intervention group reported lower levels of child behaviour

problems at the post-test assessment, as measured by the ECBI. The intervention group also reported an increase in parenting competence and a decrease in dysfunctional parenting. Furthermore, at post-test, mothers reported a decrease in anxiety, depression and stress as compared to mothers in the waitlist control group. The effects were maintained at the follow-up assessment four months post-treatment.

Similar results were reported in another study evaluating self-administered Triple P in a community sample (n = 41) of parents living in rural and remote areas targeting children (age: 2-6 years) with conduct problems (Markie-Dadds & Sanders, 2006a). In this study the efficacy of self-help with ten weekly telephone consultation plus written workbook was compared to self-help written workbook only and also included a control group. Again, participants were included that had reported child behaviour within the clinical range on the ECBI. At post-test, the workbook plus telephone consultation group reported lower levels of disruptive behaviours, as measured by the ECBI, and lower levels of dysfunctional parenting than the other two groups. At the 6-month follow-up assessment those effects were maintained. In addition, the parents in the workbook-only group reported a similar decrease in disruptive child behaviour at follow-up, implying that both intervention groups were similarly effective in decreasing disruptive child behaviour.

The same authors (Markie-Dadds & Sanders, 2006b) conducted another study evaluating the workbook version of Triple P, only without the additional telephone support. The sample comprised 63 preschool aged children (2 – 5 years), with disruptive behaviour in the clinical range of the ECBI as reported by the mother (Markie-Dadds & Sanders, 2006b). At post-test, mothers reported lower levels of child behaviour problems, as measured by the ECBI, less use of dysfunctional discipline strategies and higher levels of parenting self-efficacy than mothers in the waitlist control group. No significant changes were found on the Depression Anxiety Stress Scale. The effects on child behaviour and parenting style were maintained at the 6-month follow-up.

Also without telephone support, but with weekly therapist consultations added, the workbook version of Triple P was examined in a community sample of 69 families with preschool aged children (*M* = 4.1 years) (Hahlweg, Heinrich, Kuschel, & Feldman, 2008). Results indicate intervention effects on mother-reported reductions in externalizing child behaviour problems, as measured with the Child Behaviour Checklist (CBCL/1.5-5; Achenbach & Rescorla, 2000) and in dysfunctional parenting practices both at post-test and at follow-up (six months). No intervention effects were found on parental depression.

Similar findings were reported in the two studies (Sanders, Baker, & Turner, 2012; Sanders, Dittman, et al., 2014) evaluating the efficacy of the online version of the self-administered Triple P Positive Parenting Program (TPOL). In the first study (Sanders et al., 2012) a sample of 116 families was recruited, with children (aged 2-9 years) with early onset conduct problems, as measured by the ECBI, who were randomly assigned to either the intervention group (without telephone consultation) or the waitlist control group. Results indicated better parent reported outcomes on disruptive child behaviour, dysfunctional parenting (laxness, verbosity, overreactivity) and parenting self-efficacy for the

intervention group compared to the control group. At six months following the intervention all effects were maintained, except for the effects on disruptive child behaviour, as measured by the SDQ).

In the second study (Sanders, Dittman, et al., 2014) the efficacy of two self-help variants of the Triple P Positive Parenting Program was evaluated: the new online version and the self-help workbook. No comparison group was included and no telephone consultations were held. No significant differences in outcomes between the two variants were found in a sample of 193 children aged between three and eight years displaying elevated levels of disruptive behaviour problems. At post-intervention, mothers and fathers reported decreases in disruptive child behaviour, dysfunctional parenting, and an improvement in parent-child relationship and parental adjustment (anxiety, stress, depression). Mothers further reported an increase in parenting confidence at post-intervention. Compared to fathers in the workbook condition, fathers in the online group reported greater reductions in child behaviour problems and dysfunctional parenting. At six months post-intervention, most effects were maintained.

In summary, the self-administered Triple P Positive Parenting Program has been found to be effective in preschool community samples dealing with behaviour problems in a numerous ways. All discussed studies reported reductions in disruptive child behaviours and dysfunctional parenting (laxness, verbosity, overreactivity) following the intervention. The two studies involving the online version (Sanders et al., 2012; Sanders, Dittman, et al., 2014) found intervention effects on parenting self-efficacy, with the most recent study also detecting decreases in parental stress, depression, and anxiety. One study involving the workbook (Connell et al., 1997) also reported decreases in parental stress, depression, and anxiety. Most of the effects were maintained at follow-up (range: 4-6 months), with exception of the changes measured by the SDQ (Emotional Symptoms, Conduct Problems, Inattention / Hyperactivity, Peer Problems, and Prosocial Behaviour) in one study (Sanders et al., 2012), while in the same study parental laxness had even decreased further at follow-up.

Although the study comparing the self-help workbook version of Triple P with and without telephone support (Markie-Dadds & Sanders, 2006a) did not find any differences in efficacy, arguments can be made in favour of offering additional support to increase programme fidelity. Research findings indicate that families of children with disruptive behaviour tend to have a high drop-out rate with regard to parenting interventions (Barkley et al., 2000). Avoiding high drop-out rates may be especially relevant for parents of hyperactive/inattentive children. In a qualitative study examining barriers encountered during parenting programmes that target ADHD, Smith et al. (2015) concluded that parents needed encouragement to be motivated to complete the programme. This advocates for the inclusion of some type of support when addressing hyperactivity/inattention through parenting interventions.

1.4 Summary of Previous Research

With regard to the parent training programmes, discussed in the current review, that target preschool hyperactive/inattentive behaviours, no self-administered parent training has been tested with a sufficient sample size. Due to the prevalence of ADHD, the need for parenting interventions exceeds

the availability of clinicians and resources (Daley et al., 2009), and implementation of evidence-based self-help parenting interventions has become a necessity. The therapist-led Triple P Positive Parenting Programs with parents of preschool children at risk of developing ADHD, have effectively addressed certain parenting constructs that are associated with preschool hyperactivity, including laxness, over-reactivity, verbosity, parenting satisfaction, self-efficacy and stress. The self-help Triple P Positive Parenting Programs have been shown similar results with parents of children with behaviour problems.

1.5 Associated Impairments and Comorbid Behaviours

A range of parenting constructs related to preschool hyperactivity, have been successfully addressed by parenting training interventions. In addition to these parenting constructs, other impairments and comorbid behaviours and impairments have also been associated with preschool hyperactivity, such as conduct problems, problematic social functioning, deficits in executive functions, motivational deficits, and parental ADHD. These need to be taken into account, in order to create a nuanced picture of treatment efficacy, which, in turn, may inform practice, research, and policy-making. Below, co-morbid conduct problems are discussed first, followed by social functioning in pre-schoolers with hyperactivity, executive functioning, motivational deficits and reward processing, and parental ADHD.

1.5.1 Conduct problems

Conduct Disorder is being reported to co-occur with ADHD up to 50% of all cases and the criteria for Oppositional Defiant Disorder are met by approximately 30-60% of all children with ADHD (Bendiksen et al., 2014; Kadesjö, Kadesjö, Hägglöf, & Gillberg, 2001). In the preschool years, there are high comorbidity rates between hyperactivity and conduct problems (Sonuga-Barke et al., 2005). For example, as they grow older, around 30% of preschool boys develop conduct disorder, which can be diagnosed from the age of 7 (Beauchaine, Hinshaw, & Pang, 2010). Considering these high comorbidity rates, both hyperactivity and conduct problems need to be measured when examining intervention effects in parenting programmes that target preschool hyperactivity. As with preschool hyperactivity/inattentiveness, parenting is thought to play a role in the development of conduct problems. For example, easily angered parents are likely to respond negatively to their poorly regulated toddler, which elicits more impulsive and defiant behaviour from their child, possibly leading to concurring oppositional problems (Sonuga-Barke et al., 2005). Children with ADHD who also display oppositional problems are thought to have more severe ADHD symptoms and more problems with peers (Kuhne, Schachar, & Tannock, 1997).

1.5.2 Social functioning

Apart from conduct problems, preschool children with hyperactivity/inattention often have social difficulties with peers (Barkley, 2014). For example, in a US study of 252 children investigating the validity of DSM-4 criteria for children aged four to six years displaying hyperactive/inattentive

behaviours, teachers reported that children with ADHD symptoms were less prosocial and less accepted by their peers than the children in the control group (Lahey et al., 1998). A US study investigated differences in child and family functioning between preschool aged children with and without hyperactive/inattentive behaviour difficulties (Dupaul, McGoey, Eckert, & VanBrakle, 2001). The results suggested that the pre-schoolers in the hyperactive/inattentive group were socially less skilled while their parents reported less effective coping strategies and higher levels of stress than the control group.

Social difficulties have also been linked with preschool hyperactivity/inattention in a cross-sectional NZ study by Keown and Woodward (2006), comparing peer functioning in a community sample of pervasively hyperactive preschool-aged boys. Hyperactive boys showed more disengagement during play, more aggression and more non-compliance, while teachers reported more peer withdrawal, less pro-social behaviour and less acceptance by their peers, as compared to the children in the control group. Between-group differences in peer behaviours in the hyperactive group and control group were explained in part by differences in parental disciplinary practices (e.g. laxness), efficiency of child behaviour management (e.g. coping), and patterns in parent-child interactions (e.g. interactional synchrony). For example, lax parenting behaviours partly explained between-group differences in prosocial behaviour. These findings suggest that it would be informative to examine whether difficulties in children's peer related behaviours improve when their parents participate in a parenting programme for preschool hyperactivity.

1.5.3 Executive functioning

Deficits in executive functions are associated with preschool ADHD (Barkley, 1997; Sjöwall, Backman, & Thorell, 2015; Sonuga-Barke et al., 2005; Thorell & Wåhlstedt, 2006). Consistent findings over the past 25 years indicate that almost half of all individuals with ADHD display deficits in executive functions (Nigg, 2013). Executive functions relate to the skills involving self-regulation, including inhibition, planning and working memory (Sergeant, Geurts, & Oosterlaan, 2002). Individuals with deficits in these areas may have difficulties with prioritizing behaviour, inhibiting stereotyped behaviours, maintaining an idea of relevant information for the task ahead, and resisting irrelevant and distracting information (Banich, 2009). During the preschool years, a specific relation is thought to exist between hyperactivity and deficits in inhibition, planning, working memory, and flexibility with attention (Mariani & Barkley, 1997; Schoemaker, Mulder, Dekovic, & Matthys, 2013; Sonuga-Barke, Dalen, Daley, & Remington, 2002). Given the evidence for the link between preschool ADHD and deficits in executive functions, it may be informative to include measures of executive functioning when examining the efficacy of parenting programmes that target preschool hyperactivity. Levels of deficits in executive functions may predict hyperactive/inattentive behaviour outcomes.

1.5.4 Motivational deficits and reward processes

Neuropsychological models have been proposed to explain other cognitive dysregulation and motivational deficits associated with ADHD, (Tarver et al., 2014). Motivational deficits and reward

processes are especially relevant to this thesis. Brain functions of individuals with ADHD differ to those without ADHD with regard to their response to anticipated rewards (Scheres, Milham, Knutson, & Castellanos, 2007). Evidence for distinct behavioural responses is most consistent with regard to delayed rewards, with individuals with ADHD experiencing more negative affect than those without ADHD (Marco et al., 2009). Children learn to associate delay settings with failure leading to a motivation to avoid delay. When given the choice between immediate versus delayed rewards, individuals with delay avoidance will choose immediate rewards. When delay of reward is imposed, this is thought to invoke frustration, overactivity, or inattention (Sonuga-Barke, Sergeant, Nigg, & Willcutt, 2008). One theory that aims to explain these abnormalities in reward processing is the dopamine transfer deficit (DTD) theory, which suggests that anticipatory dopamine cell firing to cues predicting reward is weaker in children with ADHD (Tripp & Wickens, 2008). In normally developing children, anticipatory cell firing is thought to lead to maintenance of behaviour after reinforcement ceases. Children with ADHD however, may need more immediate and frequent reinforcement to establish desired behaviours. These processes are of importance when considering parenting programmes targeting preschool hyperactivity/inattention and suggest more frequent positive reinforcement is needed to help children with ADHD regulate their own behaviour (Tarver, Daley, & Sayal, 2015).

1.5.5 Parental ADHD symptoms: Relationships with parenting and child ADHD symptoms

Parental ADHD may also be a predictor of child hyperactive/inattention outcomes, in parenting interventions that target preschool hyperactivity. Considering that 50 to 80% of all children with ADHD continue to display these behaviours in adulthood (Faraone, Biederman, & Mick, 2006) and the high heritability rate of the disorder, it is likely that children with ADHD may have a parent with ADHD symptoms. In turn, adult ADHD has been associated with impaired parenting and family functioning (Biederman, Faraone, & Monuteaux, 2002; Chronis-Tuscano et al., 2008), raising the question of how parental ADHD may impact the efficacy of parenting interventions. For example, a UK study examined the influence of maternal ADHD on the efficacy of a parenting programme in a sample of 83 mothers and their three-year old children (Sonuga-Barke, Daley, & Thompson, 2002). Child ADHD symptoms were assessed by using two questionnaires (i.e. Werry-Weiss-Peters Activity Scale; Behavior Checklist) and one semi-structured interview (Parental Account of Child Symptoms). Mothers were divided into three groups on the basis of self-report ratings of ADHD, ranging from low, medium, to high. Results indicated that maternal ADHD moderated the intervention effect, with high levels of maternal ADHD corresponding with smaller improvement in child ADHD symptoms. Furthermore, in comparison to mothers with low and medium ADHD ratings, mothers with high ADHD ratings were reported to be less satisfied and competent in their parenting, as measured by the Parental Sense of Competence Scale (PSOC; Johnston & Mash, 1989). A US study also examined the influence of maternal ADHD on the changes in child behaviour following intervention, in a sample of 70 mothers of children aged 6-10 years (Chronis-Tuscano et al., 2011). Controlling for pre-intervention scores, maternal ADHD symptoms predicted disruptive child behaviours at post-intervention. This effect was mediated by observed changes in negative parenting. The results of a prospective study also suggest that negative parenting serves as a mediator between parental and child ADHD (Tung, Brammer, Li, & Lee, 2014). The findings of these studies indicate that the level of ADHD symptoms in parents may

influence the efficacy of parenting interventions for preschool hyperactivity, and, therefore should be assessed.

1.6 Programme Satisfaction, Implementation, and Barriers to Implementation

Programme satisfaction refers to the social validity of a programme (Kazdin, 1980). Within the area of parenting interventions, programme satisfaction is typically measured with a few items on a questionnaire and reported by stating whether satisfaction was low, medium, or high (McMahon & Forehand, 1983). Parental satisfaction with a programme and its outcomes may not correspond to actual results. The degree of satisfaction however, may affect maintenance of newly acquired skills (Eyberg, 1993). Although several studies have assessed consumer satisfaction as an outcome of parenting programmes (Gardner, Burton, & Klimes, 2006; Markie-Dadds & Sanders, 2006a), none have explored its influence on parenting outcomes. Ratings of programme satisfaction tend to be influenced by social desirability, as parents may be nervous about offending the professionals involved (Young, Nicholson, & Davis, 1995). In this light, the best method of gathering in-depth satisfaction data is thought to be open-ended questions (Stallard, 1996).

Besides information on programme satisfaction, programme implementation and barriers to implementation are also important to measure. Collecting consumers' views on the implementation of parenting programmes assists with programme development and helps to ensure relevance and appropriateness of the programme content and format (Sanders, 2012). In addition, collecting data on the barriers that parents encounter regarding participation in parenting programmes may explain differences in intervention effects. In a review, Koerting et al. (2013) examined 12 qualitative studies either focussing on barriers to or facilitators of parenting programmes that target child behaviour problems. The results regarding barriers included time constraints, practical issues (e.g. transport, childcare), psychological barriers (e.g. stigma, distrust regarding confidentiality), dislike of group activities, and difficulties with following the programme (e.g. lack of support). Finally, data on programme satisfaction, implementation and barriers may inform programme development.

1.7 Overall summary

Hyperactive/inattentive behaviour is common during the preschool years, with prevalence rates up to 18.3% (Egger et al., 2006). Parenting may be of pivotal importance in the continuity of the disorder (Chronis et al., 2007). Parenting constructs that have been associated with preschool hyperactive/inattentive behaviours include high levels of laxness, over-reactivity, verbosity, and dysfunctional parent-child relationships, and low levels of parenting efficacy, positive parenting, and parenting satisfaction. With regard to social functioning of hyperactive/ inattentive pre-schoolers, less effective maternal coping, dysfunctional parenting, and high levels of parenting stress have been found to negatively impact social functioning.

Evaluating the efficacy of Triple P self-help with parents of children with preschool hyperactive/inattentive behaviours is valuable, since therapist-led Triple P Positive Parenting Programs

targeting preschool ADHD have successfully addressed a range of parenting constructs related to preschool ADHD. These parenting constructs include laxness, over-reactivity, verbosity, anxiety, depression, stress, parenting satisfaction, and self-efficacy. Similar results, in addition to decreased hyperactive child behaviour, were reported by other parenting programmes targeting preschool ADHD, i.e. NFPP, PCIT, and IY. Some limitations to the discussed studies include reliance on maternal reports of child hyperactivity/inattentiveness only, lack of long-term follow-up results, lack of a control condition, and failure to use a well validated outcome measure of preschool hyperactivity/inattention.

Due to the impact of ADHD on children, their parents and the wider community and due to the high prevalence of preschool ADHD (Daley et al., 2009), self-help parenting interventions need to be tested in samples of preschool children with hyperactive/inattentive behaviours . With regard to self-help Triple P, both variants have been tested in samples of preschool children with conduct problems and have demonstrated to be effective in reducing dysfunctional parenting, reducing parental stress, over-reactivity, verbosity, laxness and reducing levels of problem behaviour, while increasing parenting self-efficacy. Although addition of telephone support did not enhance the efficacy of self-help Triple P, this type of additional contact may encourage parents of children with preschool hyperactivity to complete the programme.

Besides hyperactive/inattentive child behaviour, comorbid behaviours and associated impairments, including social relationship problems, conduct problems, and deficits in executive functions, need to be assessed to better understand the efficacy of parenting programmes for preschool hyperactivity. Similarly, parental ADHD needs to be assessed when measuring intervention effects as it may serve as a moderator influencing the outcome of parent training interventions (Goldstein et al., 2007). Finally, intervening before early symptoms have grown into a full-blown disorder is advantageous both on an individual and society level, thus justifying the consideration of parent training as beneficial (Sonuga-Barke et al., 2001; Young & Myanthi Amarasinghe, 2010).

1.8 Current Study

Taking into account the existing literature and limitations of the studies reviewed, the current research investigated the efficacy of the online variant of the self-administered Triple P Positive Parenting Program with parents of preschool children with hyperactivity/inattentiveness. Considering the potential influence of parental ADHD on intervention effects, ADHD symptoms of the parents were measured at pre-intervention. Child executive functioning was also assessed at pre-intervention, to examine its potential prediction of hyperactivity outcomes. Two telephone sessions with a Triple P facilitator were added to the intervention with the aim of increasing programme adherence and completion. A two-stage screening process was adopted to ensure a sample of parents of pre-schoolers with extreme and impairing levels of hyperactivity/inattention was identified for inclusion in the study. To measure preschool hyperactivity/inattentiveness outcomes, a well-validated measure was used that distinguishes between ADHD and conduct problem symptoms. Methodological improvements of the current study involve inclusion of teacher and parent reports of social child functioning, teacher reports of hyperactivity; parent reports about child executive functioning, and parental ADHD.

1.8.1 The effects of TPOL

1.8.1.1 Aims

The first part of the study aimed to examine the efficacy of the online version of the self-help Triple P Positive Parenting Program (TPOL) with two telephone consultations with a Triple P practitioner (see Appendix J), in a sample of preschool children displaying hyperactive/ inattentive symptoms. Using a quantitative approach, the short- and long-term effects on hyperactive/ inattentive child behaviour were the primary focus. The secondary child outcomes were psychosocial behaviour at preschool as perceived by the child's teacher, while the secondary parent outcomes included dysfunctional parenting practices, parental stress, depression, anxiety, parenting satisfaction, self-efficacy, and well-being. To examine potential factors influencing the intervention effects, parental ADHD, child executive functions, and programme satisfaction were measured.

1.8.1.2 Hypotheses

It is hypothesized that following the intervention, in comparison to the delayed intervention condition, the intervention condition would report a) lower levels of hyperactive/ inattentive child behaviour; b) lower levels of defiant/aggressive child behaviour; c) higher levels of child social functioning; d) lower levels of parenting over-reactivity, laxness and verbosity and higher levels of positive parenting; e) lower levels of stress, depression and anxiety; and f) higher levels of parenting satisfaction and self-efficacy. The maintenance of the short-term effects for these child and parent variables was assessed at six-month follow-up. Hypotheses for six-month follow-up effects were not proposed due to the paucity of prior research for long-term maintenance effect. It was further hypothesized that, within the intervention condition, parents with high levels of ADHD symptoms would report fewer improvements in parenting and child behaviour, than parents low in ADHD symptoms. Similarly, within the intervention group only, it was predicted that children with higher levels of deficits in executive functions (EF) would show less reduction in hyperactive/inattentive child behaviour as compared to children with lower levels of EF deficits. Finally, it was explored whether within the intervention group, levels of consumer satisfaction at post-intervention would affect the outcomes in positive parenting and dysfunctional parenting practices six months later.

1.8.2 Programme satisfaction, implementation, and barriers to implementation

1.8.2.1 Aims

The second part of the study aimed to gain in-depth information about how well the online self-help programme met the needs of parents who participated. Post-intervention interviews were conducted asking parents about their expectations, the support received during the programme, helpful parenting strategies, benefits of the programme, barriers in using the programme and strategies, parents' current need for assistance with parenting, their goals, and their child's hyperactive/ inattentive behaviour (see Appendix K).

1.8.2.2 Research questions

The overarching question to be answered is: “To what extent did completion of the online Triple P-Positive Parenting Programme meet participants’ needs”. This overarching question can be divided into four related questions:

1. “Which barriers and which facilitators did parents experience while using the online parenting programme”
2. “What were the most useful strategies for parents”
3. “How helpful was the programme in facilitating change in hyperactive/inattentive child behaviour”
4. “What other benefits did parents gain from participating in the programme”

2 METHOD

This chapter describes the method for the RCT and the post-intervention interviews. First a description of the recruitment procedures, the sample, the screening procedure and the measures used in this RCT will be outlined. After that, the study design and procedure will be set out. Subsequently, the data analysis methods that were used in this study are explained. Finally, the post-intervention interview method and sample are described, as well as the interview questions and the thematic approach that was used to analyse the data.

2.1 Trial Registration

This trial was registered on the Australian New Zealand Clinical Trials Registry (ANZCTR) and was provided with the registration code ACTRN12613000480785.

2.2 Participants

2.2.1 Recruitment

Participants were recruited throughout New Zealand from January 2013 to August 2014. Advertisements were placed throughout New Zealand at child care and early childhood centres such as kindergartens and playcentres; at public places such as community centres, libraries and supermarkets; at child health centres (e.g. Plunket); and on a range of parenting websites. Within Auckland, 119 kindergartens were visited three times at six-month intervals over a 20-month period to request from the teachers support with advertising the study. Teacher support encompassed sending home notices about the study and advertising in the kindergarten's newsletters. None of the head teachers who were visited refused to participate. In addition to the 119 Auckland kindergartens, another 26 more remotely situated kindergartens, 41 playcentres, and 188 childcare centres in Auckland were contacted either by phone or email (see Table 2.1 for details of numbers and types of responses). In total 138 kindergartens, playcentres, and childcare centres agreed to assist with recruitment within the Auckland region.

Outside Auckland 27 kindergarten associations throughout New Zealand, comprising 313 individual kindergartens, were contacted either by phone or by email to request support with recruitment. Two kindergarten associations declined participation without giving a specific reason. Hutt Kindergartens, Ashburton Kindergarten Association, Kataia and District Kindergarten Association, Marlborough Kindergartens, Nelson Tasman Kindergartens, and Rimutaka Kindergarten Association all agreed to assist with recruitment. These associations either informed the head teachers of their kindergartens themselves, or gave the researcher the permission to do so. In addition, 84 kindergartens situated in Wellington, Tauranga, Southland, Upper Hutt, Nelson, Canterbury, North Taranaki, and Napier agreed to participate. Also outside Auckland, 28 playcentre associations were contacted, with seven agreeing to support recruitment by informing 118 individual playcentres. Six

Early Childhood Education Centres, 208 childcare centres outside Auckland also assisted with recruitment. All kindergartens, playcentres, and ECE centres that agreed to assist with recruitment, were contacted three times at six-month intervals throughout the recruitment phase.

Table 2.1. Childcare and Early Childhood Centres in and Outside Auckland Contacted to Help with Recruitment

	Contacted	Refused	No response	Agreed
Within Auckland				
Kindergartens	145	0	23	122
Playcentres	41	0	39	2
Childcare centres	188	64	110	14
Total within Auckland	*374*	*64 (17%)*	*172 (46%)*	*138 (37%)*
Outside Auckland				
Kindergartens	313	1	228	84
Playcentres	372	0	254	118
Early Childhood Education Centres	32	0	26	6
Total outside Auckland	*717*	*1*	*508 (71%)*	*208 (29%)*
Total	***1091***	***65 (6%)***	***680 (62%)***	***346 (32%)***

To further reach out to New Zealand parents, advertisements were placed on 136 websites, three times at six-month intervals, including the NZ Childcare Association, parentingcentral.co.nz, and the Porse website, an in-home childcare organization. Barnardos was contacted to assist with recruitment, but were non-responsive. The Faculty of Education's media person arranged a media release about the project in January 2013 that led to two interviews on national radio and Breakfast TV with Dr. Louise Keown to explain the study, and led to articles in free Auckland Whangarei community newspapers. Advertisements about the study were also placed on the University of Auckland and the Faculty of Education websites, by University of Auckland media personnel. Finally, advertisements were placed in The Tribune (Palmerston North), Hamilton Press, and in Christchurch Mail, all three of which are free community newspapers.

2.2.2 Sample size

To obtain an estimation of the expected effect size for the key outcome variable of this study; child ADHD symptoms, existing literature on the efficacy of interventions for reducing child ADHD symptoms was examined. As the current study used the early childhood version of the Conners Parent Rating Scale (Conners, 2009) as an outcome measure of preschool hyperactivity, only studies that

used parent reports on the Conners Parent Rating Scale for the same purpose are discussed. An effect size of *d* =.71 was obtained on the Conners at post-intervention in a trial of the Incredible Years programme (IY; Webster-Stratton et al., 2011) with a sample of 79 three to seven year old children with hyperactivity, (Jones et al., 2007). Another trial of the efficacy of IY in a sample of 99 four to six year old children, attained effects sizes of *d* = .46 for inattention and *d* = .85 for hyperactivity (Webster-Stratton et al., 2011). In a study comparing the efficacy of the New Forest Parenting Programme (NFPP; Weeks et al., 1999) with an established parenting intervention, large effect sizes were found for post-intervention changes in hyperactivity/inattention and impulsivity for both interventions, ranging from *d* = .89 to *d* = 1.24 (Abikoff et al., 2014).

Based on the studies above, a large effect size was expected on changes in hyperactive/inattentive child behaviour following the intervention. Power analysis were conducted by using the software G-Power (version 3.1), calculating the necessary sample size for the use of ANCOVA to assess intervention effects on two outcome measures, i.e. inattention/hyperactivity and restless/impulsive. Results indicated that by assuming a power of .80 and an alpha of .05, the study would need a total *N* of 64 families (32 families per condition) to detect a large effect size. Taking into account a potential attrition loss of 20%, the total *N* would need to be 80.

2.2.3 Eligibility criteria

Parents were screened for participation in the study using a two-stage interview procedure, which took place over the telephone, with each child's primary caregiver. The first part of interview was to inform parents about what participation in the research trial entailed, establish their interest in taking part, and administer the screening questions described below.

In order to be included in the study parents needed to meet the following criteria; being able to read an English newspaper without assistance and have access to a computer and internet. These conditions were necessary as the intervention consisted of an online programme with written information and the research involved completion of written questionnaires by parents at three time points. Families were excluded from participating if their child had a developmental disability (i.e. autism, intellectual disability) or other significant health impairment, as the intervention was designed for children with behavioural problems who are otherwise developing normally and there is a separate Triple P programme designed for parents of children with disabilities. Families with children on medication for ADHD related problems, children having regular contact with another health practitioner/ agency, and parents receiving treatment for psychological problems or relationship problems were also excluded to increase the likelihood that any changes in child behaviour and parent wellbeing could be attributed to the intervention rather than other treatments the parent or child was receiving.

The second part of the screening process involved a two-part child behaviour screening interview comprising the Werry-Weiss Peters activity rating scale (WWP; Routh, 1978; described in section 2.2.7) and the Parental Account of Child Symptoms (PACS; Taylor et al., 1991; described in section 2.2.7). Parent's whose reports of their child's behaviour were at or above a score of 14 on the WWP proceeded to the second stage of the screening, the PACS interview. The cut-off score 14 for

the WWP was chosen to avoid excluding potential participants in the first stage of the screening process (Achenbach, 2014; Malo, Hanley, Cerquozzi, Pelletier, & Nadon, 2006). The purpose of the PACS was to obtain more in-depth information about the child's hyperactive/inattentive behaviour difficulties and functioning. To ensure the sample consisted of parents of children with elevated and impairing levels of hyperactivity/inattentiveness, only families with children scoring at or above 16 on the PACS, and who met criteria for impaired functioning (see section 2.2.) were eligible to participate.

2.2.4 Enrolment and Attrition

In total 207 families responded to advertisements by email or phone and were sent information about participation (i.e. participant information sheet and consent form). Of those families, 67 did not return the consent form and could not be contacted. The remaining 140 parents who did respond to contact by the researcher were screened for eligibility, which resulted in the exclusion of 74 cases. Of those 74 families, 13 families had no concerns about their child being hyperactive or inattentive, seven were not interested, six families had a child older than four years, three had a child younger than three years, and two families did not have access to the internet. Four children had a developmental disorder, and nine families were currently receiving support, either for the child's behaviour (*n* = 3), maternal psychological problems (*n* = 5), or both (*n* = 1). Other reasons for exclusion were lack of time (*n* = 4) and interest in face-to-face interventions only (*n* = 2). Two families with twins were unable to focus on one child when answering the screening questions of the PACS, which means that one twin, was unable to be identified to take part in the study. One of these families asked to be interviewed at a later point in time, but could not be contacted when followed up. Finally, 13 families did not reach the cut-off score for hyperactive/ inattentive child behaviour on the WWP and nine did not meet the cut-off score for the PACS. Referral information to other services was given to those families that did not meet the inclusion criteria (see Appendices F and I).

The flow of the participating families in each stage of the randomized controlled trial is represented in Figure 3.1. Of the 66 eligible families 13 failed to complete Time 1 assessment, leaving 53 participants in the study. Randomization resulted in 27 families in the intervention condition and 26 in the delayed intervention condition. At Time 2, five families did not complete all questionnaires. Of these five families two could not be contacted, one family was too busy, one mother suffered a prolonged illness, and one family in the delayed intervention group started another parenting programme. At Time 3, another three families failed to complete the questionnaires, two of whom could not be contacted and one family was too busy.

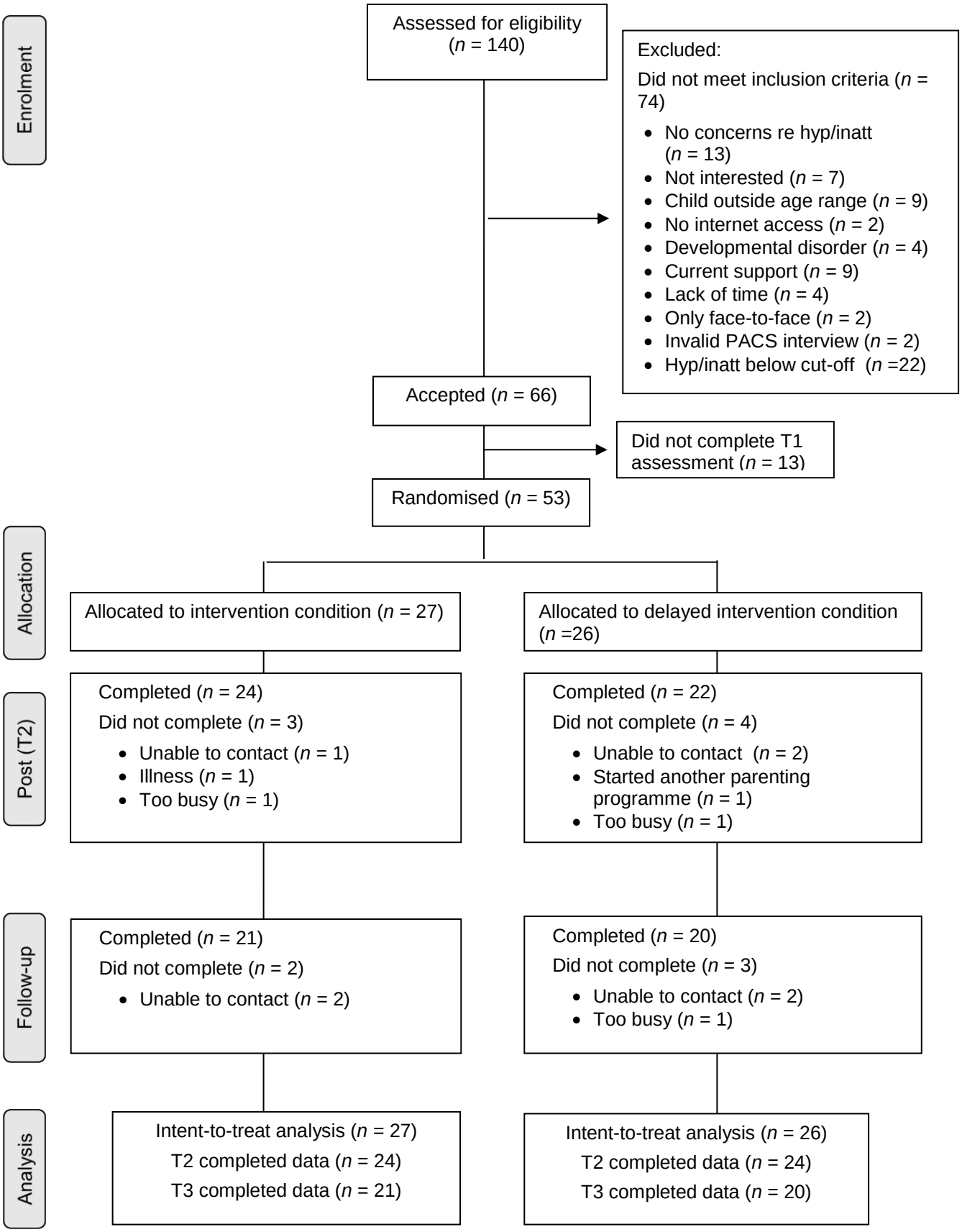

Figure 2.1. CONSORT diagram showing the participants' flow through each stage of the randomized controlled trial, and reasons for drop out.

2.2.5 Demographics

Demographic information was obtained using the Family Background Questionnaire (FBQ) which was adapted from the Western Australian Child Health Survey (Zubrick et al., 1995). The FBQ collects biographical data, family background information, and information about the child's and parents' (mental) health history. Parental mental health questions ask about recent contact with health care professionals such as psychologists, social workers, and counsellors. As reported by the mothers, 26% mothers and 16% fathers had consulted a mental health care professional over the past six months before the start of the trial. Child health questions asked about the presence of physical, mental, and developmental, disabilities and about any recent contact with a professional for emotional or behavioural problems. Four mothers reported child hearing problems and three reported a developmental delay, none of which were reported during the screening interview. The developmental delays included two cases of diagnosed language/speech delay, one suspected case of Aspergers, and one suspected case of auditory processing disorder, which was later confirmed by a formal diagnosis, after having completed the programme, but before having completed the follow-up assessment. Of the reported developmental delays, two families reported that their child had a language delay and one family suspected that their child had ADHD and autism, based on parent impression.

The majority of the parents were living together. One couple from the delayed intervention condition separated between post-intervention (Time 2) and follow-up (Time 3), and one intervention condition couple separated between pre-intervention (Time 1) and post-intervention (Time 2). Two-thirds of the participating families resided in the Auckland region. A third of all families had an annual income of over NZ$100.000 and just over half of the mothers had a university degree. All but two mothers were the primary caregiver. For the purpose of this research, the word mother is used to refer to primary caregivers, while the word father refers to secondary caregivers. Mothers had a mean age of 35.4 years (*SD* = 4.87). The 43 fathers who contributed study data had a mean age of 38.8 years (*SD* = 6.65) Children's mean age was 4.0 years (*SD* = 0.59). Around 70% of the children were boys and approximately 80% of the children were of New Zealand European ethnicity. Table 2.2 displays the demographic characteristics of the sample by condition. No significant differences between the conditions were found except for maternal age. Mothers in the intervention condition were significantly older (*M* = 37.19, *SD* = 4.11) than were mothers in the delayed intervention condition (*M* = 33.46, *SD* = 4.93; *t* (51) = -2.99, *p* = .004).

Table 2.2. Demographic Characteristics of the Sample

	Intervention (*n* = 27)		Waitlist (*n* = 26)		Difference between the conditions		
Continuous	*M*	*SD*	*M*	*SD*	*t*	*p*	*d*
Child age (years)	4.03	0.60	3.90	0.58	0.80 (51)	.428	.012
Mother age (years)	37.19	4.11	33.46	4.93	2.99 (51)	.004	.149
Father age (years)	39.00	5.05	38.64	8.01	0.18 (41)	.860	.000
Categorical	*n*	%	*n*	%	χ^2	*p*	
Child gender							
Male	20	74.1	18	69.2	0.153	.696	
Female	7	25.9	8	30.8			
Child ethnicity							
NZ European	22	81.5	20	76.9	3.560	.834	
Maori	2	7.4	1	3.8			
Pacific Island	1	3.8	0	0			
Asian	0	0	1	3.8			
Other	2	7.4	3	11.5			
Total number of children at home							
One	5	18.5	7	26.9	0.697	.813	
Two or three	20	74.1	17	65.4			
Four or more	2	7.4	2	7.7			
Marital status parents							
Intact	21	84.0	21	80.8	0.092	1.000	
Separated	4	16.0	5	19.2			
Region a							
Auckland	18	66.7	16	61.5	0.151	.697	
Outside Auckland	9	33.3	10	38.5			
Region b							
North[a]	18	66.7	17	65.4	0.679	1.000	
Central north[b]	2	7.4	2	7.7			
Central[c]	6	22.2	5	19.2			
South[d]	1	3.7	2	7.7			

	Intervention (*n* = 27)		Waitlist (*n* = 26)		Difference between the conditions	
Categorical	*n*	%	*n*	%	χ^2	*p*
Annual family income						
<NZ$30,000	2	7.4	4	15.4	2.717	.781
NZ$30,000 – 50,000	3	11.1	3	11.5		
NZ$50,000 – 75,000	4	14.8	4	15.4		
NZ$75,000 – 100,000	8	29.6	4	15.4		
>NZ$100,000	8	29.6	10	38.5		
Not known	2	7.4	1	3.8		
Employment status primary caregiver						
In paid employment	15	55.6	17	65.4	0.535	.465
Not employed	12	44.4	9	34.6		
Education primary caregiver						
Year 10 – 12	2	7.4	2	7.7	2.642	.803
Year 13	7	25.9	9	34.6		
Trade or apprenticeship	2	7.4	2	7.7		
University undergraduate	6	22.2	8	30.8		
University postgraduate	10	37.0	5	19.2		

Note. [a]Auckland, Northland; [b]Bay of Plenty, Rotorua, Gisborne; [c]Wellington, Wanganui, Taranaki, Hawkes Bay, Tasman; [d]Otago, Southland

2.2.6 Measures

Primary and secondary caregivers from each family completed measures on child hyperactivity/inattentiveness and adult ADHD symptoms. The age of the children in the current study across the three assessment points varies from three to five years. Primary caregivers also completed questionnaire measures on child executive function, dysfunctional parenting (overreactivity; verbosity; laxness), authoritative parenting, parent well-being, anxiety and depression, parenting role satisfaction, parental self-efficacy, and client satisfaction and programme feedback. Teachers completed measures of child behaviour and social functioning at preschool and school (for those children who had started school at T2 and/or T3). All questionnaires were completed at three time points (pre-intervention; post-intervention; follow-up), except for demographics, adult ADHD, and child executive function, which were collected at pre- intervention only, and client satisfaction and feedback, which were measured at post-intervention.

2.2.7 Behaviour Screening Measures

The Werry-Weiss-Peters activity rating scale (WWP; Routh, 1978) was used as the first step in the screening process to select high scoring children on hyperactivity/inattention. The WWP has 22 items rated on a 3-point Likert type scale (0 = no or almost never, 1 = some of the time, 2 = much or quite a bit), which ask parents about their child's activity patterns in a range of daily settings (see Appendix G). Sample items are: "During meals, is your child up and down at the table?"; "When watching television, does your child wriggle?"; and "Does your child have difficulty settling down to sleep?". This measure is typically used when screening for hyperactive symptoms (Azevedo, Seabra-Santos, Gaspar, & Homem, 2013; Mash & Johnston, 1982; Sonuga-Barke, Thompson, Daley, & Laver-Bradbury, 2004). Good psychometric properties have been reported for the WWP in preschool samples, with an internal consistency of α = .88 (M. L. Miller, Fee, & Netterville, 2004), and a test-retest reliability of .85 (Thompson et al., 2009). The reliability coefficient in the current study was α = .74.

The Parental Account of Child Symptoms (PACS; Taylor et al., 1991) was used as the second step in the screening process to recruit a sample of families of pre-schoolers with extreme and impairing levels of hyperactive/inattentive behaviour difficulties. The PACS is a standardized semi-structured interview assessing child behaviours at home including ADHD and ODD symptoms (Taylor, Schachar, Thorley, & Wieselberg, 1986). It was initially designed for school-aged children, but was successfully adapted for preschool-aged children (Keown, 2011; Keown & Woodward, 2002; Sonuga-Barke et al., 2001; Sonuga-Barke, Lamparelli, Stevenson, Thompson, & Henry, 1994). In this study questions were asked to assess the presence of ADHD symptoms including attention span, activity level and fidgeting in a range of age-appropriate settings such as sleeping, mealtimes, reading, watching television, solitary play, playing with other children, shopping, and family outings. Parents were asked detailed questions about their child's behaviour over the previous six months to establish the frequency and severity of hyperactive and inattentive behaviour problems. Severity of impairment due to hyperactive/inattentive behaviours was assessed by asking the parent about their perceived severity of the hyperactive/inattentive behaviours displayed by their child and the impact of the behaviours on the child's life at home and at preschool. In addition to severity and frequency, the level of impaired functioning was assessed for those hyperactive/inattentive behaviours that were rated high in severity or frequency. Interviewer ratings of impaired functioning were made on a 4-point scale from no problem/no concern to serious problems/constant concern. A minimum score of 1 out of 6 on impaired functioning (PACS impact) was required to be included in the study. Examples of PACS interview questions can be found in Appendix H. The interviewer (N.F.) was trained by her main supervisor (L.K.) who is experienced in the use of the PACS. Training comprised guidance in interview techniques and interpretation of the PACS manual and reading PACS interview transcripts from previous research with examples of model interview questioning. Training also included written feedback on a practice interview, and a random selection of audiotaped interviews from the current study. Ten percent of the interviews were cross-checked, with correlations between raters ranging from .82 to 1. Psychometric properties of the measure as used in a sample of preschool-aged boys were good, with a concurrent validity with the SDQ hyperactivity scale of .65 to .70 (Keown, 2011). In another preschool sample the test-retest reliability (r = .81) was reported to be high (Sonuga-Barke et al., 2001). Other reports of concurrent validity of the PACS included .78 for the Conners Parent N-scale

of ADHD (Christiansen et al., 2008), .59 with the PBQ hyperactivity scale (Keown & Woodward, 2002). and .57 with the WWP (Sonuga-Barke et al., 1994). In the current sample, Pearson's correlations with the PACS were $r = .45$ ($p < .01$) for the WWP and $r = .46$ ($p < .01$) for the Inattention/Hyperactivity scale of the Conners.

2.2.8 Measure of Adult ADHD

The Adult ADHD Self-Report Scale (ASRS; Adler et al., 2006) was used to measure levels of ADHD symptoms in mothers and fathers. The ASRS was chosen because it is a widely used, free measure that maps on to the DSM criteria of ADHD, and has high concurrent validity with the rater version of this measure (Adler et al., 2006). The ASRS contains 18 items based on DSM-IV criteria with a 5-point scale measuring the frequency of the ADHD symptoms in adults (0 = *never,* 1 = *rarely,* 2= *sometimes,* 3 = *often,* 4 = *very often*). The ASRS contains two parts, with six items (part A) most predictive of symptoms consistent with ADHD, and 12 items (part B) providing additional indications of ADHD symptoms. A score at or above 4 in part A is considered to be clinically elevated. The ASRS is an official instrument of the World Health Organisation (WHO) (Rösler et al., 2006) and comprises two 9-item subscales: Inattention and Hyperactivity-Impulsivity subscale (Kessler et al., 2005). Adler and colleagues (2006) reported and internal consistency of α = .88. Good internal consistency has been also been found for the ASRS for mothers and fathers (Cronbach's α = .89, .76, respectively) (Kessler et al., 2005). High levels of concurrent validity have been obtained with diagnostic measures of adult ADHD on the Composite International Diagnostic Interview (CIDI; Kessler et al.,2005) and the Adult ADHD Clinician Diagnostic Scale (ACDS; Adler et al., 2006). In the current study Cronbach's alpha's were α = .89 for mothers and α = .76 for fathers.

2.2.9 Outcome Variables

2.2.9.1 Child behaviour at home

The Conners Early Childhood Behaviour scale (Conners EC-BEH; Conners, 2009) was used to assess hyperactive/inattentive, defiant aggressive child behaviour, and problematic social functioning of the child. The Conners Rating Scales, were chosen because they, have been successfully used to examine differences between children with and without ADHD in both in preschool- and school-aged children (Dupaul et al., 2001) and to measure post-intervention changes in ADHD symptoms (Abikoff et al., 2014) and in conduct problems (Webster-Stratton et al., 2011). This is in contrast to measures used in other Triple P RCTs (e.g. Bor, Sanders, & Markie-Dadds, 2002), such as the Eyberg Child Behaviour Inventory (ECBI; Eyberg & Ross, 1978) to measure intervention effects on ADHD symptoms. However, the ECBI has been found not to discriminate between children with ADHD and ODD (Weis et al., 2005). In the current study primary caregivers were given the full-length version of 115 items. Scales used in the current study were: Inattention/Hyperactivity, Defiant/Aggressive Behaviour, Social Functioning, and the Restless/Impulsive index. Children with a high score on Restless/Impulsive may be easily distracted, restless, fidgety, or impulsive. Children with high scores on Defiant/Aggressive Behaviours may be argumentative, defiant, or verbally/physically

aggressive. Children with a high score on the Social Functioning scale may have difficulties with body language, social cues, making friends, or emotions and have poor social skills. Secondary caregivers completed the short version of 49 items, which covered fewer aspects of child behaviour than the full version. Secondary caregiver scales included in the current study were: Inattention/Hyperactivity, Defiant/Aggressive Behaviour, and Social Functioning. The questions were rated on a four point Likert scale ranging from 'not true at all' to very much true'. Scores at or above 65 on any of the Conners Early Childhood Behaviour scales and indices are considered to be clinically elevated. The final two questions were open-ended and asked about any other concerns the parent may have and about the child's strengths or skills. Rather than using SPSS statistical software to calculate the scale totals and the index, forms were scored using Conners EC Scoring Software which generated assessment reports and progress reports. The Conners EC Scoring Software provides information on the reliability of the ratings and flags overly negative, overly positive, and inconsistent scores. Based on the normative sample, internal consistency for the scales and index used in the present study were α = .94 (Inattention/Hyperactivity), α = .87 (Restless/Impulsive), α = .92 (Defiant/Aggressive Behaviours), and α = .92 (Social Functioning) (Conners, 2009). Test-retest reliability statistics were r = .88, r = .75, r = .88, and r = .77 (Conners, 2009). For the short version, which in this study was completed by the secondary caregivers, the alphas were α = .87 for Inattention/Hyperactivity, α = .81 for Defiant/Aggressive Behaviour, and α = .84 for Social Functioning, with test-retest coefficients of r = .85, r = .82, and r = .66 (Conners, 2009). In the current sample, mothers and fathers' pre-intervention ratings of child behaviour were significantly correlated, with r = .54 (p < .01) for inattention/hyperactivity, r = .57 (p < .01) for problematic social functioning, and r = .35 (p < .05) for defiance/aggression. The mother-rated Inattention/Hyperactivity scale and the Defiant/Aggressive behaviour scale also correlated significantly in the current sample, with r = .52 (p < .01), indicating high comorbidity between hyperactivity and defiance. As no alphas were provided by the Conners EC Scoring Software and the raw data were not entered in statistical software, alphas could not be calculated to assess scale reliability. Instead, the results of the overly positive, overly negative, and inconsistency indices are presented. At pre-intervention two mothers were inconsistent in their responses and one father was overly negative in his responses. At T2 and T3 all scores were consistent and none were overly positive or negative.

The Behaviour Rating Inventory of Executive Function-Preschool (BRIEF-P; Gioia, Espy, & Isquith, 2005) was used to collect data on the child's executive functions. The BRIEF-P is used in assessing executive function in preschool-aged children and has been standardized using a normative sample and tested in clinical samples including children diagnosed with ADHD. A range of studies have found an association between deficits in executive functions and preschool ADHD (Schoemaker et al., 2013; Sjöwall et al., 2015). The measure addresses various aspects of executive function within the context of the child's everyday environment. In the current study, the Global Executive Composite was used, which comprises five clinical scales that measure the extent to which the parent reports child behaviour problems within the five domains of executive functioning: Inhibit; Shift; Emotional Control; Working Memory; and Plan/ Organize. Children with difficulties with inhibition have trouble stopping their own behaviour in an appropriate manner. Children with difficulties with emotional control show overblown emotional reactions to minor events, such as temper tantrums or laughing hysterically. The

Working Memory scale addresses the child's ability to hold information in mind to complete a task at hand. The Plan/ Organize scale assesses how well a child plans and organizes appropriate steps to achieve an objective within a certain context. All items are rated on a 3-point scale and refer to the extent to which behaviours have been a problem during the past six months (never; sometimes; often).

Using a questionnaire to measure executive functioning in a day-to-day setting provides valuable information on how problems in this area are perceived by parents in everyday life (Sherman & Brooks, 2010). The BRIEF-P is the only standardized questionnaire specifically designed to measure executive functions in preschool aged children. Goia and colleagues (2005) reported an internal consistency score of α = .95, and a test-retest score of α = .90 for the Global Executive Composite. Credibility of each respondent's scores is assessed by the Inconsistency and Negativity scales that are part of the BRIEF-P. The extent to which respondents answer questions inconsistently, as compared to combined community and clinical samples, is measured by the Inconsistency scale. In the current sample, one parent had an Inconsistency score of eight, which is considered unusually high when compared to the normative sample (corresponding to <1% of all cases). The Negativity scale detects unusual negative answers of a selection of BRIEF-P items. This may indicate skewed data, however it also may indicate severe problems with the child's executive functioning. In this study five respondents had an elevated negativity score.

In the current sample 41 children had a score above the clinical cut-off of 65 (M = 77.20, SD = 8.07), and 12 children had a score below the clinical cut-off (M = 55.08, SD = 5.65). Correlations between executive function scores and child behaviours on the Conners were r = .53, (p < .01) for inattention/hyperactivity, r = .58 (p < .01) for restless/impulsive, and r = .60 (p < .01) for defiance/aggression, as reported by mothers. No significant correlations were found with mother-reported social functioning or with any of the father-reported child measures. Correlations between executive functions were r = .34 (p < .05) for the WWP and r = .46 (p < .01) for the PACS.

2.2.9.2 Child behaviour at preschool

Teachers completed two measures to assess peer relations and child behaviour in a preschool or school setting.

The Child Behaviour Scale (CBS; Ladd & Profilet, 1996) is a teacher-report instrument containing 35 items rated on a 3-point scale (0 = doesn't apply, 1 = applies sometimes, 2 = certainly applies) measuring preschool aged children's behaviour and peer relations in a school setting. The CBS can also be used reliably with older children (Ladd, Herald-Brown, & Andrews, 2009). The full measure contains six scales, but in the present study only ratings on the scales Prosocial with Peers and Asocial with Peers were obtained as three of the remaining scales (i.e. Aggression; Anxious-fearful; and Excluded by peers) did not fit the scope of the current research and the scope of the fourth scale, Hyperactive-distractible, was assessed by the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The prosocial scale contains seven items, e.g. "Helps other children" and "Kind towards peers". The asocial scale has six items, e.g. "Prefers to play alone" and "Withdraws from peer

activities". These scales have been found to discriminate between hyperactive and comparison preschool boys with and without social behaviour difficulties (Keown & Woodward, 2006) and have shown good internal consistency, with α = .89 for the Prosocial with Peers scale and α = .85 for the Asocial with Peers scale (Keown, 2008). Convergent validity of the scales was also reported to be good, with significant correlations between the two scales and observed aggressive interactions (Ladd & Profilet, 1996). In the study evaluating CBS scales in an older sample aged six to 13 years, reliability scores of α = .78 for 'Prosocial with peers' and α = .82 for 'Asocial with peers' were reported (Ladd et al., 2009). In the current sample the reliability of the Prosocial scale was α = .92 at Time 1, α = .88 at Time 2, and α = .96 at Time 3. The reliability coefficients of the Asocial scale were α = .85 at Time 1, α = .86 at Time 2, and α = .84 at Time 3. Pre-intervention scores for the Prosocial scale were significantly negatively correlated to mother-reported problematic child social functioning r = -.43 (p <.01), but not to father-reported problematic child social functioning.

The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was completed by the children' preschool and school teachers in order to obtain a rating of child behaviour in an early childhood or school context. The SDQ assess the presence and severity of a range of problematic behaviours, and the following two scales were used in the current study: Hyperactivity ("restless, overactive, cannot sit still for long") and Peer problems ("rather solitary, tends to play alone", "has at least one good friend"). The hyperactivity scale was used to obtain teacher data on hyperactivity/inattentiveness. The peer problems scale was included given its association with preschool hyperactivity (see section 2.5.2) and as an additional measure of teacher rated peer difficulties. Each scale contains five items rated on a 3-point scale (0 = *not true*, 1 = *somewhat true*, 2 = *certainly true*). In a review comparing the SDQ with the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), the authors conclude that both measures are efficient tools for the identification of psychiatric disorders in children (Warnick, Bracken, & Kasl, 2008). Previously, Goodman (2001) reported similar alphas in a British normative sample 5-15 year olds as rated by their teacher, with α = .88 for Hyperactivity, and α= .70 for Peer problems. The internal consistency in the current study of the different scales across the three time points is overall good, ranging from α = .62 for Peer problems to α = .94 for Hyperactivity. There was a significant negative correlation in pre-intervention scores between the peer problems scale and teacher-reported prosocial behaviour, with r = -.62 (p < .01).

2.2.9.3 Parenting behaviour

The Parenting Scale (PS; Arnold, O'Leary, Wolff, & Acker, 1993) measures parental discipline practices and includes 11 items on Laxness, 10 items on Overreactivity, 7 items on Verbosity, and 4 remaining items (unrelated to a specific factor) rating behaviour of parents of young children. The three-factor solution was used in the current study as it has been found to be valid in preschool samples (Harvey, Danforth, Ulaszek, & Eberhardt, 2001) and is widely used in Triple P research, thus enabling comparisons to be made with data from the present study. It was also of interest to examine intervention effects for laxness given the findings of Keown and Woodward's (2002) which found an association between maternal laxness and preschool hyperactivity. Each question has two anchor

questions between which the parent chooses their position on a 7-point Likert scale. A sample question from the Laxness scale with the two anchor points is: “When my child misbehaves...” “I do something right away.” – “I do something about it later.” The Laxness scale taps permissive, inconsistent discipline, in which parents back down from the limits they set or give in to their child’s coercive behaviour. The Overreactivity scale measures coercive, harsh discipline, and includes authoritarian parenting, displays of anger and the use of physical punishment. Finally, the Verbosity scale relates to lengthy or repetitive verbal responses to misbehaviour (Rhoades & O'Leary, 2007). The Overreactivity scale has shown good internal reliability in previous studies with an α = .71 based on maternal reports in a sample of preschool children with hyperactivity (Keown, 2011). In the same sample, reliability scores for Laxness were reported to be α = .82. Reliability scores for Verbosity have been reported to be α = .63 in a sample of mothers experiencing extreme difficulties in handling their preschool aged children (Arnold et al., 1993). Reliability scores were similarly high for Overreactivity (α = .81) and Laxness (α = .85) in a sample of Australian mothers of pre-schoolers (Arney, Rogers, Baghurst, Sawyer, & Prior, 2008), In the same sample the test-retest reliability for the entire measure was *r* = .79. The scale authors reported a high correspondence between the PS and observational measures of dysfunctional parenting and also with child behaviour measures such as the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999) (Arnold et al., 1993).

Similar reliability coefficients were also found in the current research, with α = .64 for verbosity, α = .80 for Overreactivity, and α = .82 for Laxness at Time 1. At Time 2 the reliability coefficients for the subscales were α = .65 for Verbosity, α = .85 for Overreactivity, and α = .87 for Laxness. Time 3 reliability coefficients were initially very low, with α = .26 for Verbosity, α = .26 for Overreactivity, and α = .20 for Laxness. After examining the inter correlations between the items and calculating the alphas after deletion of the negatively correlating items, the following reliability coefficients were obtained: α = .61 for Verbosity after deleting item 2 (“before I do something about a problem… “I give my child several warnings.” – “I use only one reminder or warning.”) , α = .81 for Overreactivity after deletion of item 14 (“After there has been a problem with my child…” “I often hold a grudge.” – “things get back to normal quickly”), and α = .83 for Laxness after deletion of item 20 (“When I give a fair threat or warning…” I often don’t carry it out.” – I always do what I said.”). The Time 3 analyses were run using the scales with these three items removed.

The Parenting Styles and Dimensions Questionnaire. The Authoritative parenting scale of the Parenting Styles and Dimensions Questionnaire (PSDQ; Robinson, Mandleco, Frost Olsen, & Hart, 2001) was used to assess positive parenting. The scale has 27 items comprising four subscales (warmth and involvement; reasoning and induction; democratic participation; and good natured/ easy going) which are assessed on a 5-point Likert scale ranging from never (1) to always (5). Robinson et al. (2001) reported good internal reliability (α = .83) for the scale as was the factorial validity of the scale). In the current study the Authoritative parenting scale was internally consistent across all assessments, with α = .87 at Time 1, α = .85 at Time 2, and α = .90 at Time 3.

2.2.9.4 Parental adjustment

The Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995) contains 21 items assessing symptoms of depression, anxiety and stress in adults. Items are scored on a 4-point scale ranging from 0 = *did not apply to me at all*, to 3 = *applied to me very much, or most of the time*. Internal consistency of the scales have been reported to be good, with α = .82 for Anxiety, α = .90 for Stress, and α = .88 for depression (Henry & Crawford, 2005). In the same study the convergent and discriminant validity of the DASS-21 was good when compared to other measures of anxiety and depression. The DASS is widely used by other Triple P trials, with one study examining Triple P Online (Sanders et al., 2012) reporting a moderate to good internal consistency (Depression α = .87; Anxiety α = .69; Stress α = .85) . In the current study, internal consistency at Time 1 was α = .80 for Anxiety, α = .89 for Stress, and α = .87 for depression. At Time 2 these alphas were α = .85 (Anxiety), α = .87 (Stress), and α = .88 (Depression). At Time 3 these alphas were α = .72 (Anxiety), α = .89 (Stress), and α = .91 (Depression).

The Parenting Sense of Competence Scale (PSOC; Johnston & Mash, 1989) assesses how competent parents feel about their parenting in terms of satisfaction and efficacy, and is widely used in other Triple P trials. The scale consists of 16 items and is rated on a six-point scale ranging from 1 = *strongly disagree,* to 6 = *strongly agree*. Example items are: "I go to bed the same way I wake up in the morning, feeling I have not accomplished a whole lot." and "If anyone can find the answer to what is troubling my child, it's me." The subscales comprise Satisfaction and Efficacy. The subscale Satisfaction refers to the satisfaction parents derive from parenting, while the Efficacy subscale taps perceived parental control over child behaviour. Internal consistency has found to be good, with Cronbach's alpha coefficients of .79 for the total score, .75 for the Satisfaction scale (9 items), and an alpha of .76 for the seven Efficacy scale items (Johnston & Mash, 1989). The PSOC has been reported to correspond highly to internalising and externalising scores on the CBCL (Johnston & Mash, 1989). In the current study the scales were internally consistent, with α = .81 (Satisfaction) and α = .71 (Efficacy) at Time 1; α = .78 (Satisfaction) and α = .77 (Efficacy) at Time 2; and α = .72 (Satisfaction) and α = .88 (Efficacy) at Time 3.

2.2.9.5 Programme satisfaction and feedback

The Client Satisfaction Questionnaire (CSQ; Sanders, Markie-Dadds, Tully, & Bor, 2000) was adapted to collect satisfaction ratings and feedback on the use of the online Triple P Parenting Program. The satisfaction scale contains eight items rated on a seven-point Likert scale addressing how well the programme met the parent's and child's needs, whether the programme decreased the child's behaviour problems and improved parent's ability to manage their child's behaviour. Two open-ended questions ask about any additional information:

1. Since beginning this programme, have you sought further assistance for your child's behaviour or for your family from any other source (including medication)? If so, please describe.

2. Have you had any other problems with your child which you feel may be related to the original difficulty?

In the current sample, four delayed intervention group families and five intervention group families had sought additional help during the trial. In the delayed intervention condition, one family received advice and assistance from an early intervention teacher, one mother who was recently divorced took her children to see a family therapist once a week, another family took part in a parenting project to gain information on parenting, and the fourth family had been referred to a mental health assessment and provider for their child's poor social functioning. Within the intervention condition, one mother completed a course on counselling, one family's child had started auditory treatment at a developmental learning centre, one family started working with an early intervention teacher for behaviour difficulties, and another two families received assistance from a special education teacher, one family for behaviour problems, and the other family for social problems.

The feedback scale assesses parents' opinion of the quality of the service provided, and consists of four subscales (content; video; activities; and resources) on a five-point Likert scale (from 'disagree strongly' to 'agree strongly'). The content subscale has three items asking about the level of difficulty, sequence, and time needed to complete the programme. The five items on the video subscale ask about the quality, content, length, size, and loading times of the videos. The five items on the activities subscale address the level of support provided by the activities, whether the activities are interesting, personal and not too difficult, and about the time needed to complete the activities. Finally, the resources subscale with its six items asks about the usefulness of the different types of resources provided by the programme (i.e. workbook; worksheets; podcast; summary email; extra activities; and telephone consultation).

Internal reliability of the CSQ, as used in a previous TPOL trial, has been reported to be high (α = .95; Sanders et al., 2012). In the current study the internal consistency was moderate, with α = .68 for total satisfaction. Looking at the separate subscales internal consistency rates were α = .69 for content, α = .96 for activities, α = .97 for videos, and α = .79 for resources.

2.3 Study design

The study design was a randomized controlled clinical trial comparing an intervention condition with a delayed intervention condition. Assessments were made at three different time points: pre-intervention; post-intervention; and six-month follow-up.

2.4 Procedure

2.4.1 Ethics Approval

Ethics approval was obtained from the University of Auckland Human Participants Ethics Committee on 21/11/2012. In addition to the approval by the University of Auckland Human Participants Ethics Committee, ethics approval was sought and given by the ethic committees of the

Royal New Zealand Plunket Society, the Auckland Kindergarten Association, the Northern Auckland Kindergarten Association, and the New Zealand Playcentre Federation. Kidsfirst Kindergarten Association did not respond to an application for ethics approval.

2.4.2 Informed Consent

All participating parents and teachers were informed in writing and by telephone about the study procedure and were given the opportunity to ask questions (see Appendices A and D). All participants returned a signed a consent form (see Appendices B, C, and E).

2.4.3 Randomization and Data Collection

After completion of screening, participating families and their child's preschool teacher received the first set of questionnaires (Time 1). When the pre-intervention questionnaires were completed, parents were randomly allocated to either the intervention group or the delayed intervention group. This was done by using an online random number generator to create a random sequence of zeros (delayed intervention) and ones (intervention), which was performed by a research assistant to avoid bias. There were no significant differences between the two conditions on any of the variables, except for maternal age (see Table 2.2). Parents in the intervention condition gained access to the online programme straight after randomization, while parents in the delayed intervention condition received access after the six month follow-up assessment (Time 3) was completed. Sixteen weeks after parents in the intervention condition had started with the parenting programme the second set of questionnaires was sent to the families and teachers in both conditions (Time 2). Six months after the post-intervention assessment all parents and teachers in both groups received the final set of questionnaires (Time 3). Families were given the option to complete the questions online or in hard copy, whereas all teacher questionnaires were mailed out with a stamped addressed envelope for their return.

2.4.4 Intervention Conditions

Triple P Online (Turner & Sanders, 2011) is a self-directed, interactive positive parenting programme delivered via the internet. It is an adaption of Level four of the Triple P- Positive Parenting Program. Level four positive parenting programmes are intensive parenting interventions focussing on parent-child interaction and the application of positive parenting skills to a broad range of target behaviours (Sanders, 2008). The Triple P Positive Parenting Program draws on five core positive parenting principles to increase potential positive developmental and mental health outcomes in children (Sanders, 2008). Ensuring children grow up in a safe and engaging environment is the first principle. The second is providing a positive learning environment to stimulate problem solving and learning. Assertive discipline is the third principle and can be considered an alternative parenting strategy to coercive and ineffective discipline practices. The fourth principle is having realistic

expectations of children's abilities. The fifth and final principle is parental self-care aimed at increasing parental well-being (Sanders, 2008).

The online programme consists of eight sequenced modules: 1) What is positive parenting?; 2) Encouraging behaviour you like; 3) Teaching new skills; 4) Managing misbehaviour; 5) Dealing with disobedience; 6) Preventing problems by planning ahead; 7) Making shopping fun; 8) Raising confident, capable kids. The linear format of the online programme allows users to review previously completed modules without omitting any forthcoming modules. The programme's features are designed to engage users, to increase knowledge, and to enhance parental self-regulation. These features include: 1) user-friendly navigation; 2) audio-visual representation of information, including parents describing their experiences in video clips; 3) personalized content including goal setting, review and feedback; 4) interactive exercises to prompt parental problems solving, decision making and self-regulation; 5) downloadable, summarized information and podcasts to review session content; and 6) printable, personalized workbook for future reference (Sanders, 2008).

Intervention condition: Families allocated to the intervention group received access to the Triple P Online parenting programme during a period of 16 weeks. Two telephone consultations with an accredited Triple P facilitator (N.F.) were added. Parents were contacted in order to schedule the first of two telephone consultations in the second week of the intervention. This was typically after parents had completed one or two modules. The second telephone session typically took place two weeks after the first session to allow parents sufficient time to progress in the programme. The aim of the consultations was to assist parents in using the parenting programme, to help them to tailor the implementation of parenting strategies to their specific family situation, to problem-solve any parenting strategy implementation difficulties (e.g. how to create a suitable place for time-out), and to increase the likelihood of programme completion.

Delayed intervention condition: Families allocated to the delayed intervention condition also received access to the intervention for 16 weeks, including the two telephone consultations, six months after the intervention group had finished the programme and the completion of Time 3 assessments. In the meantime parents in the delayed intervention group were free to access alternative services if desired.

2.4.5 Fidelity of Implementation

Fidelity refers to the extent to which a programme is implemented as intended (Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005). The consultations were audio-recorded. Twenty-five percent of the consultations were randomly selected by the researcher's main supervisor and were checked for fidelity of implementation by another qualified Triple P practitioner, who compared the recordings against a checklist to ensure that all items were covered (see Appendix J.). The inter-observer agreement of 96.8% indicated that the telephone consultations were conducted according to protocol.

During the course of this study there was no change to the content of the Triple P Online program. However, after the first 19 families (all in the intervention condition) had received the

intervention, Triple P International introduced a range of improvements to the usability and functionality of the programme. These improvements included reminder emails for parents who had not logged in for three weeks or more, the ability to use the programme on mobile and tablet devices, increased server speeds, and the option for users to select low resolution videos. The other 31 families in this study received access to this later version. However, as the programme content was not altered, it is assumed that these functionality improvements did not affect the results of the intervention.

2.5 Analytic strategy

Online data was downloaded and merged with the manually entered data. To check for data entry errors 25% of all manually entered data (i.e. data from paper questionnaires) were inspected. No errors were found indicating high confidence in the accuracy of the data entry.

Prior to conducting the main analyses, preliminary analyses were conducted. First, analyses were performed using a series of *t*-tests for continuous variables and chi-square tests for categorical variables to identify any differences between participants who were randomized and those who dropped out before randomization and between participants who completed all questionnaire data at post-intervention and those who did not.

Missing values analyses were carried out to detect the extent and mechanism of missing data. The extent and nature of missing data is related to the quality of statistical inferences. No consensus has been reached regarding the acceptable proportion of missing data (Dong & Peng, 2013), although a range of cut-offs from 5% (Schafer, 1999) to 20% (Peng, Harwell, Liou, & Ehman, 2006) has been reported. However, the amount of missing data is not the only indicator of potential bias. The mechanisms by which data are missing also assess the extent to which missing data is problematic (Dong & Peng, 2013). Three of such mechanisms exist: missing completely at random (MCAR); missing at random (MAR); and not missing at random (NMAR) (Bennett, 2001; Dong & Peng, 2013). With MCAR the likelihood a value being missing is equal across all cases, e.g. when a random item on a scale is unanswered (van Buuren, 2012). More general and realistic is MAR, where the likelihood of a value being missing is the same within defined groups. Data are MNAR when neither MCAR or MAR holds, and means that the probability of a value being missing varies according to unknown reasons. The latter mechanism constitutes the largest potential bias and is also known as non-ignorable nonresponse (Schlomer, Bauman, & Card, 2010). To detect if the data were missing completely at random, Little's MCAR test was used.

To handle missing data, the Expectation-Maximization (EM) algorithm was used. EM is a likelihood-based, single imputation method, which aims to find likely values of the missing data using the Expectation-Maximization algorithm to predict the missing values (Graham, 2012). This procedure involves two steps where missing observations are imputed, subsequently estimating the unknown parameters. In the first step (E), the observed data and the set of parameter estimates is used to calculate an initial expected value. In the second step (M) the likelihood of this expected value is maximized, generating a new set of parameters (Enders, 2001; Newman, 2003; Schlomer et al., 2010). Likelihood-based procedures produce unbiased results and are considered preferential to other

techniques of handling missing data (Enders, 2001), except perhaps for Multiple Imputation (MI). MI is particularly useful when covariates are missing as well as outcome variables (Beunckens, Molenberghs, & Kenward, 2005), however when only outcome variables need to be imputed, EM and MI produce very similar results (Bell & Fairclough, 2013; Bell, Kenward, Fairclough, & Horton, 2013) as they both rely on the same assumptions (Bell & Fairclough, 2013). As no covariates are missing in the current research, and the missing rate in the total sample does not exceed 20% (Scheffer, 2002; Schlomer et al., 2010), the more practical EM imputation procedure was used.

Intent-to-treat (ITT) analyses were conducted using the results of the EM procedure. ITT prevents bias induced by drop-outs or failure to complete questionnaires by including all randomized participants (Gillings & Koch, 1991; Gupta, 2011). With ITT the original sample size remains intact, which preserves statistical power and allows generalizability. ITT may underestimate the actual intervention effects (increase of Type II error) as it estimates participant response instead of measuring the actual response to the intervention. However, ITT reflects practical clinical situations in which withdrawal and protocol deviation occurs. All further calculations include all randomized participants and are based on the ITT sample. These analyses will be compared with results for families who completed all assessments.

After EM was completed each variable was then screened for outliers and for violations to the assumptions of normality. This was done by obtaining skewness and kurtosis values, by calculating the Kolmogorov-Smirnov statistic, by investigating the trimmed mean scores, and by visually exploring the data for the presence of univariate and bivariate outliers. Visual exploration included examination of normal Q-Q plots, detrended normal Q-Q plots, and boxplots. Extreme outliers were examined and adjusted per condition (intervention; delayed intervention) where indicated. This was done by firstly checking for any data-entry errors and secondly by winsorizing, that is replacing extreme outliers with a score three standard deviations from the mean (Field, 2013). These steps were undertaken in order to include all participants in the analyses without allowing scores to distort the data. Homogeneity of variance was assessed by using Levene's test for equality of variance. In analyses of covariance (ANCOVA), covariates should have a linear relationship with the dependent variables, and this relationship should be the same for both conditions (i.e. similar slopes on the regression line for each condition, there should be no interaction). The homogeneity of the regression slopes was examined visually by scatterplots, and statistically by checking that the interaction effect is not significant at an alpha level of.05 (Read, Kendall, Carper, & Rausch, 2013). Finally, total scale scores were calculated and the internal reliability of each scale was examined using Cronbach's alpha.

A series of independent *t*-tests for continuous variables and chi-square tests for categorical variables was used to test whether there were any significant differences between the two conditions in pre-intervention data and demographic data in order to check if randomization resulted in similar groups. Both at post-intervention, and at six-month follow-up comparisons were made between participants who completed all post-intervention measures and those who had missing data to see whether they differed significantly on demographic and pre-intervention variables

In the present study ANCOVA was used to assess the intervention effects at post-intervention and at follow-up using the ITT sample. These effects were compared to the results based on the non-missing data, called the completer sample. To examine differences between conditions across time, analysis of covariance (ANCOVA) is considered to be the most appropriate technique (Rausch, Maxwell, & Kelley, 2003; Read et al., 2013). This is a linear regression analysis in which pre-intervention scores serve as a covariate for both the short-term (Time 2) and the long-term results (Time 3). With this technique any differences in pre-intervention scores between the two conditions are accounted for. ANCOVA is preferred over the use of ANOVA as it has greater statistical power (Read et al., 2013). This increase in power is partly due to ANCOVA analyses being relatively robust against non-linear treatment effects and measurement bias, provided the assumptions of randomization and pre-treatment measurement are met, and partly due to the estimated regression slope based on the correlation between pre-treatment and post-treatment conditions. ANCOVA reduces differences between conditions at pre-treatment, enabling the exploration of the true treatment effect (Rausch et al., 2003). Jaccard and Guilamo-Ramos (2002) argue against the use of multivariate analyses of variance as a means of controlling for type 1 errors across multiple outcome variables. Instead, they contend that a better strategy is to conduct separate univariate *F* tests on each outcome variable and apply a modified Bonferroni-based correction across families of outcome variables. However, as Jaccard and Guilamo-Ramos (2002) also point out in studies with small sample sizes, applying these controls across multiple outcomes lowers statistical power, making it more likely to miss any effect that may be clinically important (Jaccard and Guilamo-Ramos (2002). Based on this last point, given the small sample size, in the current study, no controls were applied for possible chance effects and an alpha level of .05 was used to identify statistically significant findings.

To estimate the magnitude of the size of the between-conditions intervention effects, the following formula was used to calculate Cohen's *d*:

$$d = cp\ [(M_{post,I} - M_{pre,I}) - (M_{post,DI} - M_{pre,DI}) / SD_{pre}]$$

$$\text{With } SD_{pre} = \sqrt{}\ [[(n_I - 1)\ SD_{pre,I}^2 + (N_{DI} - 1)\ SD_{pre,DI}^2] / n_I + n_{DI} - 2]$$

$$\text{And } cp = 1 - [3 / 4\ (n_I + n_{DI} - 2) - 1$$

The pre- and post-test means of the intervention condition are indicated by $M_{pre,I}$ and $M_{post,I}$. The pre- and post-test means of the delayed intervention condition are indicated by $M_{pre,DI}$ and $M_{post,DI}$. The pre-test standard deviations for the two conditions are indicated in a similar way ($SD_{pre,I}$ and $SD_{pre,DI}$). This formula uses the pooled pre-test data from the intervention condition and the delayed intervention condition, which provides a precise estimate of the intervention effect (Morris, 2007). Effect sizes between .20 and .49 are considered small (but meaningful), between .50 and .79 medium, and greater than .80 large (Cohen, 1992). The intervention effects at follow-up were calculated with the same formula, comparing the follow-up data with the pre-test data.

The reliable change index (RCI) (Jacobson & Truax, 1991) and the clinical cut-offs were used to examine statistically reliable and clinically significant change of the short- and long-term intervention effects on the key child and parenting variables (i.e. Conners Inattention/Hyperactivity; Conners Impulsive/Restless; Conners-short Inattentive/Hyperactivity; PS Laxness, PS Verbosity; and PS Overreactivity). Reliable change indicates whether changes in measurements are greater than would be likely due to measurement unreliability. Clinical significance indicates whether participants have moved out of the clinical range of a measurement from pre- to post-intervention. Statistically reliable change was calculated using the following formula: SE*diff* = SD1 $\sqrt{2}$ $\sqrt{1 - r}$, with SD1 representing the pre-intervention scores and r the measure's reliability. Changes exceeding 1.96 times are unlikely due to chance and are considered to be statistically reliable. Published clinical cut-offs were used. Families were categorized based on the statistically reliable and clinically significant change and chi-square analyses were performed to detect any significant differences in the distribution between the conditions. In addition, four groups of participants were created, based on whether they showed reliable change and whether their scores were within or outside clinical range from pre-intervention to post-intervention or six-month follow-up: 1. Clinically significant change (above clinical cut-off at T1 and below at T3); 2. No clinical change (above clinical cut-off at T1 and T3); 3. Not in clinical range (below clinical cut-off at T1 and T3); and 4. Worsened (below clinical cut-of at T1 and above at T3).

To examine consumer satisfaction and programme completion, descriptive statistics were calculated. Then, three factors were explored which may have impacted a number of parenting and child behaviour outcomes: parental ADHD; child executive functions; and consumer satisfaction. The impact on outcomes was evaluated in the intervention group only.

Firstly, the composite dichotomous parental ADHD variable was computed, based on presence or absence of clinically elevated levels of ADHD symptoms (≥4 = cut-off clinical level in part A of the ASRS, see section 2.3.2) for each family. Independent samples *t*-tests were run to examine the difference between families with and without parental ADHD in terms of Time 2 and Time 3 outcomes in parenting and child behaviour. To enable exploration of the influence of maternal versus paternal ADHD symptoms on the intervention outcomes, two separate maternal and paternal ADHD scales were computed, creating three groups based on scores in part A of the ASRS, with ≤1 = low, 2 to 3 = medium, and ≥4 = high. A series of one-way between-groups ANOVAs were conducted to detect whether there were any differences in outcome variables according to maternal and paternal levels of ADHD symptoms. Secondly, the executive functions variable was dichotomized into clinical (≥65) versus non-clinical levels of deficits in executive functions. Independent samples *t*-tests were performed to detect any differences in post-intervention outcomes for inattentive/hyperactive and restless/impulsive child behaviours. Thirdly, the consumer satisfaction variable was dichotomized into high and low satisfaction, based on the median score of 45.50. To uncover potential outcome differences in positive parenting, and dysfunctional parenting, independent samples *t*-tests were conducted.

2.6 Post-Intervention Interviews

2.6.1 Recruitment

To gain insight into participants' experience and satisfaction with using the online Triple P parenting programme, post-intervention interviews using semi-structured open-ended questions were conducted. This part of the study was added in November 2013 and participants recruited from December 2013 onward received an amended participant information sheet and consent form that included information on the post-intervention interview. The 31 participants who had already been recruited and allocated, were sent a separate participant information sheet and a consent form by email or post. Of 53 families 29 participants returned a completed consent form, 19 of whom were in the intervention condition. Typically, within six weeks after parents had completed the online parenting programme and the post-intervention assessment, they were contacted by the researcher to schedule an appointment for the post-intervention interview. The first three families who were interviewed had a longer gap between programme and post-intervention assessment and interview (ranging from 12 to 17 weeks).

Delayed intervention group parents had to wait ten months on average (three to four months until the intervention condition had finished with the programme, plus six months waiting time for the follow-up assessment), with a range of eight months and ten days to 11 months and 20 days, before gaining access to the programme, and completion of the programme took another 3 months. This meant that to enable timely completion of the current research, all delayed intervention group parents recruited after February 2014 could not be included in the interview subsample. Due to the above mentioned time constraints for data collection and completion of this thesis and given that the first six interviews were with intervention group parents, it was decided to focus on intervention group families to collect the remainder of the interview data. Recruitment resulted in a total subsample of 11 parents, with the remaining eight intervention group parents, who had expressed interest, not responding to the researcher's request to schedule an interview.

2.6.2 Demographics and pre-intervention variables

A series of independent *t*-tests for continuous variables and chi-square tests for categorical variables was used to examine whether there were any significant differences between the subsample (n = 11) and the other families in the intervention condition (n = 16) who did not participate in post-intervention interviews. The subsample of interviewed parents did not differ from the other intervention group families on any of the demographic variables or parent-reported variables at pre-intervention. However, the groups did differ on two teacher ratings at pre-intervention. The subsample had significantly lower scores on SDQ Hyperactivity (M = 1.71, SD = 3.15; t (16) = 2.97, p = .009) and higher scores on CBS Prosocial (M = 11.14, SD = 3.67; t (16) = -3.49, p = .003) than the remaining intervention group participants (M = 6.09, SD = 2.98 and M = 5.80, SD = 2.82 respectively).

2.7 Post-Intervention Interview Questions

The post-intervention interview was designed to collect in-depth information about participants' experience with completing and implementing the online Triple P Positive Parenting Programme (TPOL). The questions are listed below:

1. Why did you choose to take part in the project?
2. What did you expect of the programme?
3. Did the programme live up to your expectations?
4. How helpful was the programme in helping you manage your child's behaviour?
5. Which parenting strategies did you find helpful?
6. Are you still using those skills? (If not, why not?)
7. What changes have you observed in your child's behaviour since participating in the programme?
8. Have there been other benefits of the programme for you (apart from helping to manage your child's behaviour)?
9. What have been the benefits of the programme for your child?
10. Do you feel you need more help with your child's behaviour at this time? If yes, which aspects of your child's behaviour?
11. Were there any barriers for you in using the programme?
12. Were there any barriers for you in using the strategies you learnt in the programme?

2.8 Procedure Post-Intervention Interviews

Approval was obtained from the University of Auckland Human Participants Ethics Committee on 22/11/2013 for a variation to the original ethics approval. to conduct post-intervention interviews. All 53 participants were informed in writing about the post-intervention interview and were given the opportunity to ask questions. After having received a written consent, parents were contacted by email to schedule a phone interview. Interviews typically took place within six weeks after completion of the online Triple P Positive Parenting Program (TPOL). Interviews took 20 to 30 minutes. The interviews were recorded and transcribed by the researcher.

2.9 Analysis Post-Intervention Interviews

The analysis of the data was guided by the research questions which aimed to provide in-depth information on programme satisfaction, programme implementation and barriers to implementation (see section 2.8.2). The first step of the analysis comprised reading the transcripts thoroughly and repeatedly, which is indicative of an inductive approach (Thomas, 2006). This allowed the researcher familiarization with the raw data. Although the focus of the analysis was answering a predefined set of questions, the findings emerged directly from the analysis of the raw data, not from a priori expectations. Recurrent topics for each interview were marked by using the qualitative data management software NVivo (version 10). This resulted in the creation of themes and sub-themes. All interview segments that were labelled under the same theme or sub-theme were reviewed and

compared to check for coherence and lack of overlap with each other. A second coder read through a sample of the transcripts and coded parental statements according to the themes and sub-themes provided by the first coder/researcher (Thomas, 2006). This coding was then checked by the first coder/researcher, resulting in an adapted version of the themes and sub-themes. The second coder used the adapted version to code parts of the raw data. A reliability check on the coding of the raw data resulted in an inter-rater agreement of 93%.

2.10 Triangulation of the interview results and the RCT results

Finally, findings provided by the interviewed subsample were compared with the RCT data to check whether both sources of data revealed similar results. For example, if most interviewed parents mentioned improvements in their child's hyperactive behaviour, questionnaire data about hyperactive child behaviour was examined and compared for parents who did and did not report improvements in their child's hyperactive behaviour during the interview.

3 RESULTS RCT

In this chapter the results of the randomized controlled trial are presented. The preliminary analyses are described first, including inspection of missing data (section 3.1). The short- and long-term findings, including statistically reliable and clinically significant change, are presented in section 3.2 and 3.3 respectively, followed by potential influences of outcome (section 3.4).

3.1 Preliminary Analyses

Thirteen families dropped out before randomization. A series of independent samples *t*-tests and chi-square tests revealed no significant differences between randomized (*n* = 53) and non-randomized (*n* = 13) families on child age, child gender, maternal and paternal age, WWP score, PACS score, and PACS impact score.

3.1.1 Missing values analysis at post-intervention

Seven out of the 53 randomized families did not complete post-intervention assessment, four of whom were in the delayed intervention condition. Missing data were examined per informant type (i.e. mothers; fathers; teachers). The missing rate for any item for mother data at post-intervention was less than 15%, less than 24% for father data, and less than 18% for teacher data. Results of Little's MCAR tests indicated that no significant pattern was found in the missing values for mother-reported parenting data (p = 1.000) and for teacher-reported data (p = .614), indicating that the mother and teacher data were missing completely at random.

Little's MCAR test could not be used for father- and mother-reported child behaviour, both measured by the Conners Rating Scales, because, as stated in section 2.3.3.1, the statistical software used to calculate the Conners Rating Scales does not allow any non-automated calculations. Instead, the result of a series of independent samples *t*-tests and chi-square tests, comparing demographic and pre-intervention scores of completing versus non-completing fathers, were used to inspect the presence of any patterns in the missing values. Fathers who had completed post-intervention assessments rated their child's pre-treatment level of hyperactivity/inattention significantly lower (M = 67.09, SD = 10.47) than fathers who failed to complete all post-intervention assessments (M = 68.33, SD = 5.94; t (43) = -0.38, p = .044). Children of completer fathers were significantly younger (age in months: M = 46.00, SD = 7.50) than the children of non-completers (M = 51.90, SD = 4.82; t (43) = 2.34, p = .014). Similar comparisons were also made between completers and non-completers for mother- and teacher-reported data. Mothers who failed to complete T2 assessments had significantly older children (age in months: M = 54.14, SD = 2.79; t (21.15) = 5.05, p < .001) than mothers who completed T2 assessments (M = 46.60, SD = 7.09).and had significantly lower scores on maternal anxiety (non-completers: M = 1.14, SD = 1.57; t (32.73) = -3.76, p = .001) (completers: M = 4.89, SD = 5.37). Finally, teachers who did not complete T2 assessments reported higher pre-intervention levels of

child hyperactivity (*M* = 6.33, *SD* = 3.39; *t* (33) = 2.29, *p* = .029) and lower pre-intervention levels of child prosocial behaviours (*M* = 6.19, *SD* = 3.52; *t* (33) = -2.39, *p* = .023) as compared to the teachers who completed T2 assessments (*M* = 2.93, *SD* = 3.31, and *M* = 9.66, *SD* = 3.17 respectively). These results suggest the father, mother, and teacher data at post-intervention were not missing completely at random. As no tests are available for missing at random (MAR; van Buuren, 2012), and as MAR is considered plausible within longitudinal designs (Dong & Peng, 2013), it is assumed that these data were missing at random at post-intervention.

3.1.2 Missing values analysis at six-month follow-up

At six-month follow-up, ten out of 53 families did not complete the assessments, seven of whom were in the delayed intervention condition. At follow-up the missing data rate for mothers was less than 20% for any item, for fathers this was less than 29%, and for teachers missing rate for any item was less than 65%. A series of Little's MCAR tests revealed no significant patterns in the missing data for mothers (*p* = 1.000) and teachers (*p* = 1.000), indicating that values were missing completely at random. The high missing rate at follow-up for the teacher data was due to children transferring to primary school and a lack of consent of primary schools to be involved.

Again, as father- and mother-reported child behaviour was analysed using the Conners EC Scoring Software (see section 2.3.3.1), Little's MCAR could not be used. Instead a series of *t*-tests and chi-square tests was conducted to detect any differences between completers and non-completers at six-month follow-up. For father- and teacher-reported data no significant differences were detected on any of the demographic, independent (pre-intervention), or dependent variables (post-intervention), indicating the values were missing at random. For mother-reported data, non-completers (*M* = 3.40, *SD* = 0.81; *t* (51) = 2.17, *p* = .035) scored significantly higher on pre-intervention laxness than the completers (*M* = 2.76, *SD* = 0.82). This result indicates that mother-reported data at six-month follow-up were not missing completely at random, although randomness is assumed (see section 3.1.1).

3.1.3 Imputation of missing values

Missing values were imputed using EM. To increase the accuracy of the predicted values missing values were imputed per scale per scale/subscale, per condition (intervention condition; delayed intervention condition), and per time point (post-intervention; follow-up). The almost 65% of missing teacher-reported data at six-month follow-up did not allow the use of EM and were therefore not imputed. Except for T3 teacher data, all remaining analyses were conducted in the intent-to-treat (ITT) sample, unless stated otherwise.

3.1.4 Checks for univariate outliers and the assumptions of normality

The data were then examined for the presence of univariate outliers for each variable per condition as described in section 2.6. For mother-reported data, extreme outliers (i.e. outliers above three standard deviations from the mean) were found for DASS Anxiety at pre-intervention (*n* = 1);

DASS Anxiety (*n* = 2), Stress (*n* = 1), Depression (*n* = 2) at post-intervention; and PSOC Self-efficacy (*n* = 3) and Satisfaction (*n* = 1) at follow-up. For father-reported data, one extreme outlier was detected for Conners-short Defiance at post-intervention. For the teacher data, extreme outliers were found for SDQ Peer Problems (*n* = 1), CBS Prosocial (*n* = 1) at post-intervention; and for SDQ Hyperactivity (*n* = 6) and Peer Problems (*n* = 6), and CBS Asocial (*n* = 10) at follow-up. These outliers were winsorized, that is, replaced with a score three standard deviations from the mean (see section 2.6).

The next step was checking if the data were normally distributed across all variables (as described in section 2.5). Several measures violated the assumptions of normality, with the CBS Prosocial and Asocial showing significant negative skewness. The short and long version of the Conners Early Childhood Behaviour scale, SDQ, DASS-21, PSOC, and the PS were positively skewed. As suggested by Tabachnick and Fidell (2001), moderately skewed variables were transformed by using the square root. If this transformation did not result in normally distributed data, the variable was log transformed (variables with many zeros: log (X_1 + 1)). Negatively skewed data were first reflected, before carrying out any transformation. Analyses examining short- and long-term effects were performed with the transformed and with the non-transformed data. Similar outcome patterns were detected for all concerning variables, which confirmed Tabachnick and Fidell's (2001) suggestion that violation of normality should not cause major problems with large enough samples (*n* > 30). Therefore, the results of the non-transformed were reported, which allows straightforward interpretation.

3.2 Intervention Effects: Pre- to Post-Intervention

To examine the short-term intervention effects, a series of ANCOVAs were performed using post-intervention scores as dependent variables and pre-intervention scores as covariates. With regard to meeting the assumptions of ANCOVA, all covariates were measured with reliable scales and all variables tested within each ANCOVA showed a linear relationship. Another assumption of ANCOVA is homogeneity of variances, which was assessed by using Levene's test for equality of variance (see section 2.6). Testing the short-term intervention effects, the results of Levene's test indicated that Conners Defiance had heterogeneous variances. With regard to the regression slopes, significant interaction effects between covariates and dependent variables were found for PS Overreactivity, thereby violating the ANCOVA assumption of homogeneity of regression slopes. However, as mentioned by Tabachnick and Fidell (2001), analyses of variance are reasonable robust against violation of this assumption, provided the group sizes are similar.

Firstly, short-term intervention effects on child behaviour are outlined, starting with hyperactivity/inattention, followed by conduct problems and social functioning. Short-term results on parenting measures are reported next, starting with dysfunctional parenting practices and positive parenting, followed by the results for parental adjustment and parenting confidence. The short-term results are displayed in Table 3.1.

3.2.1 Child behaviour

The ANCOVA results revealed a medium effect size (*d* = .52) for mother-reported inattention/hyperactivity, with significantly greater reductions reported by intervention group families (*F* (1, 50) = 9.98, *p* = .003) as compared to the delayed intervention group. A short-term intervention effect, with a small effect size (*d* = .48), was also found for mother-reported restlessness/impulsivity (*F* (1, 50) = 7.39, *d* = .48, *p* = .009), with the intervention condition reporting greater improvements than the delayed intervention condition. Fathers in the intervention condition reported larger reductions in child hyperactivity/inattention than delayed intervention fathers (*F* (1, 42) = 3.70, *p* = .061), with a small effect size (*d* = .40). This effect was statistically not significant. Following programme completion, teachers in the intervention condition reported less hyperactivity (*F* (1, 32) = 4.00, *p* = .054) than teachers in the delayed intervention condition. The effect size was small (*d* = .46) and did not reach statistical significance. For mother-reported defiance/aggression, although statistically not significant, a small effect size (*d* = .49) was found, with greater decreases for the delayed intervention group as compared to the intervention group. No significant condition effect was found for father ratings of defiance/aggression and the effective size was negligible. With regard to problems with social functioning, mothers in the intervention condition reported significantly greater decreases in their child's problematic social functioning than mothers in the delayed intervention group (*F* (1, 50) = 11.24, *p* = .002), with a small effect size (*d* = 0.47). A condition effect was not revealed for father ratings of child social functioning and the effect size was inconsequential. For teacher-reported social functioning, intervention group children showed significantly fewer peer problems in comparison to the delayed intervention children (*F* (1, 32) = 4.21, *p* = .048), and the effect size was medium (*d* = .60). A medium effect size (*d* = .79) was also found for teacher-reported prosocial behaviour, *F* (1, 32) = 8.63, *d* = .79, *p* = .006, with teachers of children in the intervention condition reporting significantly higher rates of prosocial behaviour than teachers of children in the delayed intervention condition.

3.2.2 Parenting

With regard to dysfunctional parenting practices, intervention mothers reported significantly greater reductions in overreactivity than delayed intervention mothers, with a large effect size (*F* (1, 50) = 50.01, *d* = 1.11, *p* < .001). Intervention group mothers reported significantly greater improvements than mothers in the delayed intervention group on verbosity (*F* (1, 50) = 14.68, *d* = .63, *p* < .001), and laxness (*F* (1, 50) = 14.06, *d* = .64, *p* < .001), with medium effect sizes. ANCOVA results further revealed a significantly greater increase in positive parenting for the intervention group than the delayed group mothers, when controlling for the pre-intervention scores (*F* (1, 50) = 9.36, *d* = .63, *p* = .004). In comparison to the control mothers, the intervention group mothers reported significantly greater reductions in stress, *F* (1, 50) = 9.71, *d* = .76, *p* = .003, and in depression, (*F* (1, 50) = 7.60, *d* = .51, *p* = .008), immediately after programme completion. No significant intervention effect was found for anxiety. Significant intervention effects with large effect sizes were found for both PSOC scales, with (*F* (1, 50) = 20.48, *d* = 1.02, *p* < .001) for parenting satisfaction, and (*F* (1, 50) = 19.54, *d* = 1.54, *p* < .001) for parenting self-efficacy.

Table 3.1. Short-Term Intervention Effects for the Dependent Variables

Measure	Intervention Condition (*n* = 27)				Delayed Intervention Condition (*n* = 26)				Univariate ANCOVA results for time by condition interaction		
	Pre-intervention		Post-intervention		Pre-intervention		Post-intervention				
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*d* [95% CI]
Hyperactive child behaviours											
Conners Inatt/Hyp	73.52	11.00	62.04	8.78	74.65	12.52	69.33	11.53	9.98	.003	0.52 [-0.02, 1.05]
Conners Rest/Imp	74.88	10.44	62.83	9.08	76.65	12.79	70.24	12.23	7.39	.009	0.48 [-0.06, 1.01]
Conners-short Inatt/Hyp [a]	65.82	8.81	60.67	9.50	68.96	9.93	67.61	9.67	3.70	.061	0.40 [-0.18, 0.97]
SDQ Hyperactivity[b]	4.39	3.68	2.79	2.03	2.59	3.18	2.62	2.86	4.00	.054	0.46 [-0.19, 1.12]
Child conduct problems											
Conners Def/Aggr	77.40	11.28	72.20	13.68	79.31	10.72	68.63	7.43	1.23	.274	-0.49 [-1.03, 0.05]
Conners-short Def/Aggr [a]	77.05	8.97	71.08	7.10	79.78	10.50	73.33	11.53	0.10	.750	-0.05 [-0.62, 0.52]
Social child functioning											
Parent-reported											
Conners Social Functioning	61.89	13.51	55.22	11.09	63.62	12.51	63.19	11.22	11.24	.002	0.47 [-0.07,1.01]
Conners-short Soc Funct [a]	66.43	12.98	62.82	12.61	66.30	14.71	64.06	11.10	0.19	.665	0.10 [-0.47,0.67]
Teacher-reported											
SDQ Peer Problems[b]	1.56	1.50	.52	0.80	1.47	1.62	1.38	1.69	3.13	.086	0.60 [-0.07, 1.26]
CBS Prosocial[b]	7.88	4.08	10.11	2.43	9.81	2.95	9.16	3.30	8.62	.006	0.79 [0.11, 1.46]
Dysfunctional parenting styles											
PS Overreactivity	3.31	0.99	2.29	0.54	3.45	.70	3.40	0.62	50.01	<.001	1.11 [0.54, 1.68]
PS Verbosity	3.49	0.86	2.76	0.79	3.75	.94	3.60	0.76	14.68	<.001	0.63 [0.09, 1.18]
PS Laxness	2.84	0.82	2.23	0.61	2.90	.88	2.84	0.83	14.06	<.001	0.64 [0.09, 1.18]

	Intervention Condition (*n* = 27)				Delayed Intervention Condition (*n* = 26)				Independent-samples t-test results for pre- to post-change		
	Pre-intervention		Post-intervention		Pre-intervention		Post-intervention				
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*d* [95% CI]
Positive parenting											
PSDQ Authoritative	57.66	8.17	62.96	7.37	58.96	10.14	58.43	8.37	9.36	.004	0.63 [0.08,1.17]
Parental adjustment											
DASS-21 Anxiety	4.14	5.25	3.01	4.20	4.85	5.19	5.00	6.41	1.58	.215	0.24 [-0.29, 0.77]
DASS-21 Stress	17.37	8.65	9.65	6.99	14.62	9.58	13.91	7.97	9.71	.003	0.76 [0.21, 1.31]
DASS-21 Depression	8.44	7.26	3.53	3.97	7.92	7.99	6.96	7.15	7.60	.008	0.51 [-0.03, 1.05]
Parenting confidence											
PSOC Satisfaction	21.19	5.85	28.37	4.70	21.69	6.31	22.57	5.36	20.48	<.001	1.02 [0.46, 1.58]
PSOC Self-efficacy	22.15	4.58	29.65	4.83	25.16	4.49	25.57	4.54	19.54	<.001	1.54 [0.94, 2.14]

Note. CBS = Child Behaviour Scale; CI = confidence interval; Conners = Conners Early Childhood Behaviour scales; Conners-short = Conners Early Childhood Behaviour scales-short form; *d* = effect size based on standardized mean difference of change from pre- to post-intervention; DASS = Depression Anxiety Stress Scales; F = ANCOVA univariate interaction effect; *M* = mean; *p* = significance level; PS = Parenting Scale; PSDQ = Parenting Styles and Dimensions Questionnaire; PSOC = Parenting Sense of Competence scale; *SD* = standard deviation; SDQ = Strengths and Difficulties Questionnaire.

[a] Intervention: n=22, Delayed intervention: n=23; [b] Intervention: n=18. Delayed intervention: n=17

3.2.3 Completer results

The short-term results for the completer sample were very similar to the Intent-to-Treat (ITT) sample results with regard to the parent-reported variables. At post-intervention, statistically significant differences with medium effect sizes were found for Conners Inattention/Hyperactivity (*d* =.49), Conners Restless/Impulsive (*d* =.46), PS Verbosity (*d* =.69), PS Laxness (*d* =.64), PSDQ Authoritative (*d* =.47), DASS-21 Stress (*d* =.63), and DASS-21 Depression (*d* =.52). Significantly greater improvements with large effect sizes were found on PS Overreactivity (*d* = 1.09), PSOC Satisfaction (*d* =.96), and PSOC Self-efficacy (*d* =1.50) for mothers in the intervention group compared to delayed group mothers. Teacher-reported results differed though, with significantly higher pre-intervention scores on the CBS Prosocial and Asocial scales for the intervention group as compared to the imputed data set.

3.2.4 Reliable and Clinically Significant Change at Post-Intervention

Table 3.2 illustrates that intervention group mothers and fathers achieved reliable improvements in child behaviour, with seven mothers and five fathers reporting clinically significant improvements in their child's hyperactive/inattentive behaviour as compared to four mothers and three fathers in the delayed intervention group. Another nine intervention group mothers reported improvements in restless/impulsive child behaviour, as compared to three mothers in the delayed intervention group. Mothers in the intervention condition also reported reliable improvements in dysfunctional parenting practices, with nine mothers achieving clinically significant reductions in overreactivity, seven in verbosity, and four in laxness. Within the delayed intervention condition, only one mother reported clinically significant and reliable improvements in overreactivity and another mother reported improvements in laxness.

The results of a series of chi-square tests revealed strong associations between placement in the intervention group and reports of significant reliable change in both child and parenting behaviour. At post-treatment, significantly more intervention group mothers than delayed intervention group mothers reported reliable and clinically significant improvements in child hyperactivity/inattention (χ^2 (1) = 4.67, p = .031) and restlessness/impulsivity (χ^2 (1) = 4.94, p = .026). With regard to post-treatment parenting behaviours, compared to mothers in the delayed intervention condition, mothers in the intervention condition reported significantly more reliable improvements in laxness (χ^2 (1) = 5.04, p = .025), verbosity (χ^2 (1) = 8.87, p = .003), and overreactivity (χ^2 (1) = 9.20, p = .002).

Table 3.2. Reliable and Clinically Significant Change for Intervention Condition at Post-Intervention

Outcome measure	Category of change	Reliable change *n* %		Not reliable change *n* %	
		Intervention	Delayed intervention	Intervention	Delayed intervention
Conners Inatt/Hyp	Clinically significant change	7 (50.0%)	4 (66.7%)	3 (23.1%)	0 (0%)
	No clinically significant change	4 (28.6%)	2 (33.3%)	5 (38.5%)	13 (65%)
	Not in clinical range	3 (21.4%)	0 (0%)	4 (30.8%)	4 (20%)
	Worsened	0 (0%)	0 (0%)	1 (7.7%)	3 (15%)
Conners Rest/Imp	Clinically significant change	9 (69.2%)	3 (60%)	3 (21.4%)	0 (0%)
	No clinically significant change	2 (15.4%)	2 (40%)	5 (35.7%)	15 (71.4%)
	Not in clinical range	2 (15.4%)	0 (0%)	6 (42.9%)	4 (19%)
	Worsened	0 (0%)	0 (0%)	0 (0%)	2 (9.5%)
Conners-short Inatt/Hyp	Clinically significant change	5 (71.4%)	3 (75%)	4 (26.7%)	2 (10.5%)
	No clinically significant change	1 (14.3%)	1 (25%)	3 (20%)	11 (57.9%)
	Not in clinical range	1 (14.3%)	0 (0%)	8 (53.3%)	3 (15.8%)
	Worsened	0 (0%)	0 (0%)	0 (0%)	3 (15.8%)
PS Overreactivity	Clinically significant change	9 (75%)	1 (50%)	4 (26.7%)	1 (4.2%)
	No clinically significant change	0 (0%)	0 (0%)	0 (0%)	13 (54.2%)
	Not in clinical range	3 (25%)	1 (50%)	10 (66.7)	7 (29.2%)
	Worsened	0 (0%)	0 (0%)	1 (6.7%)	3 (12.5%)

Outcome measure	Category of change	Reliable change *n* %		Not reliable change *n* %	
		Intervention	Delayed intervention	Intervention	Delayed intervention
PS Verbosity	Clinically significant change	7 (70%)	0 (0%)	0 (0%)	6 (24%)
	No clinically significant change	0 (0%)	0 (0%)	0 (0%)	4 (16%)
	Not in clinical range	3 (30%)	1 (100%)	16 (94.1%)	14 (56%)
	Worsened	0 (0%)	0 (0%)	1 (5.9%)	1 (4%)
PS Laxness	Clinically significant change	4 (57.1%)	1 (100%)	3 (15%)	4 (16%)
	No clinically significant change	3 (43.9%)	0 (0%)	2 (10%)	4 (16%)
	Not in clinical range	0 (0%)	0 (0%)	15 (75%)	15 (60%)
	Worsened	0 (0%)	0 (0%)	0 (0%)	2 (8%)

3.3 Intervention Effects: Six-Month Follow-Up

To evaluate the long-term intervention effects a series of ANCOVAs were conducted using the scores of the six-month follow-up scores as dependent variables and the pre-intervention scores as covariates. The specific assumptions for ANCOVA were tested prior to conducting the long-term condition analyses. All variables tested within each ANCOVA showed a linear relationship. The results of the Levene's test showed heterogeneous variances for PSDQ Authoritative Parenting, PSOC Satisfaction and Self-Efficacy. However, as the relationships between all covariates and dependent variables were linear and no significant interaction effects were found between covariates and dependent variables, the ANCOVA assumption of homogeneous variances was not violated. The long-term results are displayed in Table 3.3.

3.3.1 Child behaviour

Small effect sizes were found for mother-reported inattention/hyperactivity and restless/impulsive, d = .23 for both variables, although these effects were statistically not significant. The intervention effect of father-reported inattention/hyperactivity was in the expected direction, but was not significant with a negligible effect size. To calculate the intervention effect for the teacher-reported measures the completer sample was used. Teachers of children in the delayed intervention reported significantly greater reductions in hyperactivity than teachers of intervention group children (F (1, 22) = 8.23, p < .009), although the effect size was negligible (d = -.05). There were no condition effects for mother- and father-reported defiance/aggression and social functioning. For teacher-reported social functioning, based on the completer sample, a small, but statistically non-significant effect size was found for peer problems (d = .23), with teachers in the intervention group reporting greater reductions in peer problems than teachers in the delayed intervention group (F (1, 22) = 0.99, p < .330). Teacher-reported prosocial behaviours did not differ significantly between the conditions.

3.3.2 Parenting

At six-month follow-up, intervention mothers continued to report significantly greater reductions in overreactivity (F (1, 50) = 7.15, p = .010) and verbosity (F (1, 50) =6.71, p = .013), both with a small effect size of d = .36, but not in laxness (F (1, 50) = 1.78, d = .23, p = .188), in comparison to delayed intervention mothers. A small effect size was found for positive parenting styles (d = .32), with the intervention group reporting higher scores compared to the delayed intervention group, however this effect was statistically not significant. At the six-month follow-up, intervention effects for mother-reported stress and depression were still significant, with mothers in the intervention condition reporting greater reductions in stress (F (1, 50) = 12.05, p = .001) and depression (F (1, 50) = 5.82, p = .020) as compared to the mothers in the delayed intervention condition. The effect sizes were large for stress (d = .94) and medium for depression (d = .51). A significant intervention effect was now found on maternal anxiety, with intervention group mothers reporting significantly greater reductions in anxiety, F (1, 50) =13.38, p = .001) than mothers in the delayed intervention group, with a medium effect size (d =

.61). Finally, at 6-month follow-up, the intervention group mothers continued to report to significantly higher levels of satisfaction (F (1, 50) = 17.69, p < .001) and competency (F (1, 50) = 7.96, p = .007) with their parenting as compared to the delayed intervention group mothers. The effect sizes for satisfaction (d = .82) and parenting competence (d = 1.35) were large.

Table 3.3. Long-Term Intervention Effects for the Dependent Variables

	Intervention Condition (*n* = 27)				Delayed Intervention Condition (*n* = 26)				Univariate ANCOVA results for time by condition interaction		
	Pre-intervention		Follow-up		Pre-intervention		Follow-up				
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*d* [95% CI]
Hyperactive child behaviours											
Conners Inatt/Hyp	73.52	11.00	63.25	11.96	74.65	12.52	67.11	9.79	1.83	.182	0.23 [-0.30, 0.76]
Conners Rest/Imp	74.77	10.44	64.71	11.50	76.65	12.79	69.28	10.05	2.20	.145	0.23 [-0.30, 0.76]
Conners-short Inatt/Hyp [a]	65.82	8.81	60.92	7.82	68.96	9.93	65.19	7.55	2.43	.127	0.12 [-0.45, 0.69]
SDQ Hyperactivity[b]	4.39	3.68	3.62	1.89	1.71	2.21	0.75	1.60	8.23	.009	-0.05 [-0.90, 0.79]
Child conduct problems											
Conners Def/Aggr	77.40	11.28	69.08	9.70	79.31	10.72	71.94	9.70	0.62	.436	0.09 [-0.45, 0.62]
Conners-short Def/Aggr [a]	77.05	8.97	72.46	8.94	79.78	10.50	74.00	9.40	0.13	.718	-0.12 [-0.69, 0.45]
Social child functioning											
Parent-reported											
Conners Social Functioning	61.89	13.51	57.17	9.85	63.62	12.51	61.22	11.83	1.80	.186	0.18 [-0.36, 0.71]
Conners-short Soc Funct [a]	66.43	12.98	61.46	12.14	66.30	14.71	63.06	12.23	0.29	.596	0.12 [-0.45, 0.69]
Teacher-reported											
SDQ Peer Problems[b]	1.56	1.50	0.76	0.53	0.86	1.46	0.41	0.74	0.99	.330	0.23 [-0.62, 1.07]
CBS Prosocial[b]	8.28	3.81	9.24	1.71	9.83	2.45	11.00	3.42	2.13	.159	-0.06 [-0.90, 0.79]
Dysfunctional parenting styles											
PS Overreactivity	3.31	0.99	2.74	0.69	3.45	0.70	3.19	0.68	7.15	.010	0.36 [-0.18, 0.89]
PS Verbosity	3.49	0.86	2.71	0.78	3.75	0.94	3.30	0.75	6.71	.013	0.36 [-0.17, 0.90]
PS Laxness	2.84	0.82	2.25	0.73	2.90	0.88	2.51	0.70	1.78	.188	0.23 [-0.30, 0.76]

	Intervention Condition (*n* = 27)				Delayed Intervention Condition (*n* = 26)				Univariate ANCOVA results for time by condition interaction		
	Pre-intervention		Follow-up		Pre-intervention		Follow-up				
Measure	M	SD	M	SD	M	SD	M	SD	F	p	d [95% CI]
Positive parenting											
PSDQ Authoritative	57.66	8.17	83.17	11.27	58.96	10.14	81.57	7.16	1.40	.243	0.31 [-0.22, 0.84]
Parental adjustment											
DASS-21 Anxiety	4.14	5.25	1.64	2.26	4.85	5.19	5.60	5.23	13.38	.001	0.61 [0.07, 1.16]
DASS-21 Stress	17.37	8.65	9.45	4.90	14.62	9.58	15.40	9.33	12.05	.001	0.94 [0.38, 1.50]
DASS-21 Depression	8.44	7.26	2.84	3.51	7.92	7.99	6.27	6.27	7.62	.020	0.51 [-0.03, 1.05]
Parenting confidence											
PSOC Satisfaction	21.19	5.85	29.09	4.94	21.69	6.31	24.50	4.31	17.69	<.001	0.82 [0.27, 1.38]
PSOC Self-efficacy	22.15	4.58	29.14	5.89	25.16	4.49	25.95	4.77	7.96	.007	1.35 [0.76, 1.93]

Note. CBS = Child Behaviour Scale; CI = confidence interval; Conners = Conners Early Childhood Behaviour scales; Conners-short = Conners Early Childhood Behaviour scales-short form; *d* = effect size based on standardized mean difference of change from pre-to post-intervention; DASS = Depression Anxiety Stress Scales; F = ANCOVA univariate interaction effect; *M* = mean; *p* = significance level; PS = Parenting Scale; PSDQ = Parenting Styles and Dimensions Questionnaire; PSOC = Parenting Sense of Competence scale; *SD* = standard deviation; SDQ = Strengths and Difficulties Questionnaire.

[a] Intervention: n=22, Delayed intervention: n=23; [b] Intervention: n=18. Delayed intervention: n=7; [c] based on actual, non-imputed data: Intervention: n=18, Delayed intervention: n=7

3.3.3 Completer results

To examine whether the long-term results were similar for parents who completed all assessments, the ANCOVAs were repeated with the completer sample. The results were very similar to the Intent-to-Treat (ITT) sample results. At six-month follow-up, a small effect size was found for PS Overreactivity (d = .48, p = .029), medium effect sizes were detected for PS Verbosity (d = .51, p = .026), DASS-21 Anxiety (d = .63, p = .004) and DASS-21 Depression (d = .63, p = .014), and large effect sizes were obtained for DASS-21 Stress (d = .82, p = .007), PSOC Satisfaction (d = .80, p = .001), and PSOC Self-efficacy (d = 1.28, p = .021).

3.3.4 Reliable and Clinically Significant Change at Follow-Up

As shown in Table 3.4, intervention group mothers and fathers achieved reliable improvements in parenting and child behaviour at six months post-treatment. Nine mothers and seven fathers in the intervention condition reported a clinically significant, reliable improvement in their child's hyperactive/inattentive behaviour, as compared to three mothers and five fathers in the delayed intervention condition. In addition, six intervention group mothers reported clinically significant, reliable reductions in their child's restlessness/impulsivity, compared to one delayed intervention group mother. With regard to dysfunctional parenting styles, five mothers showed clinically significant improvement in overreactivity, four mothers in verbosity, and seven mothers in laxness as compared to two delayed intervention group mothers for overreactivity and verbosity and four delayed intervention group mothers for laxness. Results of the chi-square analyses revealed no association between significant reliable change and condition (intervention vs delayed intervention).

Table 3.4. Reliable and Clinically Significant Change for Intervention Condition at Six-Month Follow-Up

Outcome measure	Category of change	Reliable change *n* (%)		Not reliable change *n* (%)	
		Intervention	Delayed intervention	Intervention	Delayed intervention
Conners Inatt/Hyp	Clinically significant change	9 (60%)	3 (30%)	1 (8.3%)	0 (0%)
	No clinically significant change	4 (26.7%)	7 (70%	6 (50%)	9 (56.3%)
	Not in clinical range	2 (13.3%)	0 (0%)	5 (41.7%)	5 (31.3%)
	Worsened	0 (0%)	0 (0%)	0 (0%)	2 (12.5%)
Conners Rest/Imp	Clinically significant change	6 (75%)	1 (14.3%)	4 (21.1%)	2 (10.5%)
	No clinically significant change	1 (12.5%)	6 (85.7%)	8 (42.1%)	11 (57.9%)
	Not in clinical range	1 (12.5%)	0 (0%)	6 (31.6%)	4 (21.1%)
	Worsened	0 (0%)	0 (0%)	1 (5.3%)	2 (10.5%)
Conners-short Inatt/Hyp	Clinically significant change	7 (100%)	5 (100%)	1 (6.7%)	8 (44.4%)
	No clinically significant change	0 (0%)	0 (0%)	5 (33.3%)	4 (22.2%)
	Not in clinical range	0 (0%)	0 (0%)	9 (60%)	5 (27.8%)
	Worsened	0 (0%)	0 (0%)	0 (0%)	1 (5.6%)
PS Overreactivity	Clinically significant change	5 (100%)	2 (66.7%)	5 (22.7%)	3 (13%)
	No clinically significant change	0 (0%)	1 (33.3%)	3 (13.6%)	10 (43.5%)
	Not in clinical range	0 (0%)	0 (0%)	12 (54.5%)	6 (26.1%)
	Worsened	0 (0%)	0 (0%)	2 (9.1%)	4 (17.4%)

Outcome measure	Category of change	Reliable change *n* (%)		Not reliable change *n* (%)	
		Intervention	Delayed intervention	Intervention	Delayed intervention
PS Verbosity	Clinically significant change	4 (66.7%)	2 (100%)	2 (9.5%)	6 (25%)
	No clinically significant change	0 (0%)	0 (0%)	1 (4.8%)	2 (8.3%)
	Not in clinical range	2 (33.3%)	0 (0%)	17 (81%)	15 (62.5%)
	Worsened	0 (0%)	0 (0%)	1 (4.8%)	1 (4.2%)
PS Laxness	Clinically significant change	7 (70%)	4 (100%)	1 (5.9%)	3 (13.6%)
	No clinically significant change	0 (0%)	0 (0%)	1 (5.9%)	2 (9.1%)
	Not in clinical range	3 (30%)	0 (0%)	13 (76.5%)	15 (68.2%)
	Worsened	0 (0%)	0 (0%)	2 (11.8%)	2 (9.1%)

3.4 Impact on Outcomes

Based on the prediction that child executive functioning would affect intervention outcomes on child hyperactive/inattentive behaviours, associations between executive functions and post-intervention scores on child inattention/hyperactivity and restlessness/impulsivity were examined within the intervention group. However, as no associations were found, further analyses were not conducted.

3.4.1 Parental ADHD

A composite dichotomous score, which combined maternal and paternal clinical levels of ADHD symptoms, was created to enable evaluation of the influence of the presence or absence of parental ADHD on intervention outcomes. Across the entire sample, 17 families had a parent with clinically elevated levels of ADHD symptoms, ten of whom were in the intervention condition. Looking only at the intervention condition at post-intervention and at six-month follow-up, no differences were found between families with (n = 10) and without parental ADHD (n = 17), except for mother-reported child inattention/hyperactivity and social functioning at follow-up. Mothers of families with parental ADHD reported significantly greater levels of inattentive/hyperactive child behaviour (M = 69.24, SD = 13.50; t (25) = -2.13, p = .044) and greater child social problems (M = 63.63, SD = 8.27; t (25) = -2.99, p = .006) than mothers of families without parental ADHD (M = 59.73, SD = 9.72 and M = 53.37, SD = 8.82 respectively). The effect sizes were large for inattention/hyperactivity (d = -0.85) and very large for social functioning (d = -1.20).

Next, to enable detection of the separate influence of maternal levels versus paternal levels of ADHD symptoms, a separate maternal and a paternal ADHD variable was computed, both with low, medium, and high levels of ADHD (see section 2.6). The influence of maternal ADHD was examined first with a series of one-way between-groups ANOVAs for Time 2 and Time 3 outcome variables. At post-intervention, significant differences between the maternal ADHD groups were found for stress F (2, 24) = 5.02, p = .015 and social functioning F (2, 24) = 3.84, p = .036. The Tukey HSD test indicated that for stress the low group (M = 7.64, SD = 3.78) differed significantly from the high group (M = 18.50, SD = 6.99) (see *Figure* 3.1). For social functioning the groups did not differ significantly. At six month post-treatment there was a significant between-group difference for the variable laxness (F (2, 24) = 4.01, p = .031). The Tukey HAD test revealed that the low group (M = 1.93, SD = 0.45) differed significantly from the medium group (M = 2.61, SD =0.74) (see *Figure* 3.2). Comparing the groups of paternal ADHD did not result in any significant differences in any of the pre-intervention, post-intervention, or follow-up variables.

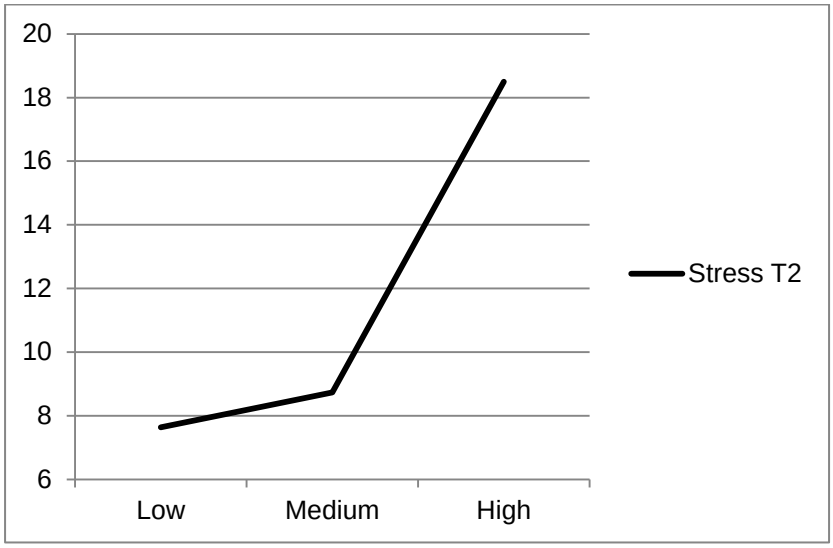

Figure 3.1. Differences between low, medium, and high maternal ADHD scores on the DASS-21 Stress at T2

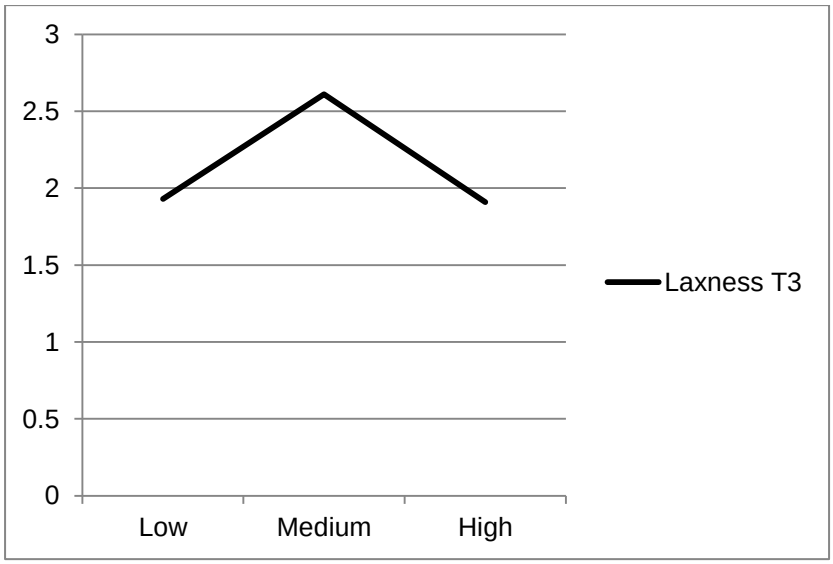

Figure 3.2. Differences between low, medium, and high maternal ADHD scores on the PS Laxness at T3

3.4.2 Consumer satisfaction

Consumer satisfaction with the online parenting programme and feedback on the services was collected from 24 participants, all within the intervention condition. Table 3.5 displays the means and standard deviations of the consumer satisfaction scale and the feedback scale with its separate subscales, together with the reported range and the scale range. The resource subscale was left out from the table and from the total feedback scale as there were too many items missing.

Table 3.5. Descriptive Statistics Feedback Scales and Consumer Satisfaction (*n* = 24)

	Mean	*SD*	Reported range	Scale range
Feedback content	12.88	1.70	10, 15	3, 15
Feedback video	21.04	3.06	15, 25	5, 25
Feedback activities	20.00	4.28	5, 25	5, 25
Feedback total	53.92	7.85	36, 65	13, 65
CSQ satisfaction	44.63	8.16	28, 56	8, 56

Consumer satisfaction following parenting programmes has been assessed in several studies as an outcome variable (Gardner et al., 2006; Markie-Dadds & Sanders, 2006a). Many of these studies use a measure explained by Eyberg (1993). In this paper, Eyberg (1993) suggests that the level of satisfaction with a parenting programme may affect maintenance of skills. This has not yet been examined and will be explored in the current study. Based on Eyberg's (1993) suggestion, it was explored whether, within the intervention condition, satisfaction ratings had any association with dysfunctional parenting practices and positive parenting at post-intervention and at six-month follow-up. To test this, the dichotomized variable was entered as the independent variable in a series of independent samples *t*-tests, with Time 2 and Time 3 parental overreactivity, laxness, verbosity, and authoritative parenting as dependent variables.

As shown in Table 3.6, parents with high consumer satisfaction scores reported greater increases in authoritative parenting (M = 66.67, SD = 7.11; t (22) = -2.59, p = .017) at post-intervention than parents low in satisfaction (M = 59.25, SD = 6.92), with a large effect size (d = -1.10). No statistically significant differences were found for post-intervention scores on dysfunctional parenting, although large effect sizes were found for verbosity (d = .87) and laxness (d = .82), and a medium effect size was obtained for overreactivity (d = .56). At six-month follow-up, the only statistically significant difference between high and low satisfaction groups was for laxness, with parents high in consumer satisfaction reporting greater reductions in laxness (M = 1.81, SD = 0.55; t (22) = 3.50, p = .002) than parents with low satisfaction scores (M = 59.25, SD = 6.92). The effect size for laxness was large (d = 1.49). Although statistically not significant, a medium effect size was obtained for authoritative parenting (d = -.67) and overreactivity (d = .67), and a large effect size was found for verbosity (d = .88).

Table 3.6. Mean Parenting Scores of High and Low Consumer Satisfaction Groups

	High satisfaction (n = 12)		Low satisfaction (n = 12)				
	M	*SD*	*M*	*SD*	*t*	*p*	*d*
Positive parenting							
PSDQ Authoritative T2	66.67	7.11	59.25	6.92	-2.59	.017	-1.10
PSDQ Authoritative T3	87.51	8.42	80.76	12.40	-1.56	.133	-0.67
Dysfunctional parenting							
PS Overreactivity T2	2.13	0.67	2.44	0.45	1.32	.199	0.56
PS Overreactivity T3	2.48	0.51	2.93	0.84	1.58	.131	0.67
PS Verbosity T2	2.43	0.77	3.09	0.80	2.05	.052	0.87
PS Verbosity T3	2.35	0.85	2.79	0.62	2.06	.052	0.88
PS Laxness T2	1.99	0.66	2.47	0.56	1.93	.067	0.82
PS Laxness T3	1.81	0.55	2.71	0.70	3.50	.002	1.49

4 RESULTS POST-INTERVENTION INTERVIEWS

In this section, the themes and sub-themes coded from the post-intervention interviews are presented. First the results are presented by theme. Then, patterns of child behaviour and parenting reported at interview were compared and contrasted with the RCT quantitative results for changes in child behaviour and parenting (see section 2.10).

4.1 Themes

The thematic analysis evolved around four topic areas, as guided by the research questions: programme implementation; helpful strategies; patterns of hyperactive/inattentive child behaviour; and other positive changes in parenting and child behaviour.

4.1.1 Programme implementation

The range of barriers and facilitators about the implementation of the online programme can be divided into three themes:

- programme engagement;
- programme content;
- programme format.

Programme engagement is discussed first, presenting the barriers before the facilitators. The remaining themes are presented in the same fashion. Table 4.1 illustrates an overview of the barriers and facilitators per theme, with the number of parents mentioning the specific barrier or facilitator. Summaries and descriptions of the facilitators and barriers, with quotes to illustrate them, are provided below Table 4.1.

Programme engagement, barriers - Time constraints or commitment was a barrier for eight mothers. One mother said:

> *"Even though it was at home, it still took a chunk of the week. So it was hard, even though with didn't have to go out for the course, it was still hard finding the time"*

Four mothers mentioned their partner being less involved, or uninvolved in the programme as a barrier. As a consequence of this, some mothers reported feeling alone in their parenting, not wanting to undermine ineffective parenting by their partner in front of their children, and having to try and address the issue in a positive way at a later point in time. Another consequence mentioned by these mothers was that both parents got side tracked and reverted to shouting or other ineffective parenting practices.

> *"Just my husband not involved, not doing it. So he's inconsistent with it."*

" .. my husband did do it as well, but not as thoroughly and I think because he hadn't been as involved in it, it is harder to have backup to do it."

Three mothers had trouble remembering and putting into practice all the skills they had learned. One of these mums suggested a reminder session every three or six months to prevent losing the learned skills. Along these lines, two mothers said they needed more reminders to complete the online programme. One of these mums said:

"Maybe more reminders would be good, especially when I wasn't having these phone consultations with you, that kept me on track, I had to keep up, keep on track with all the modules"

Table 4.1. Overview of Barriers and Facilitators

	Barriers	Parents *n*	Facilitators	Parents *n*
Programme engagement	Time constraints	8	Engaging activities	4
	Partner not involved	4	Interactive	1
	Difficulty recollecting new skills	3		
	Need for more reminders	2		
Programme content	Too generic	3	Parenting information	9
	Opposed to strategies	2	Programme pitch	4
Programme format	Linearity	4	Audio-visual information	6
	IT issues	4	Digital reference	5
	Digital reference	2	Online aspect	4

Programme engagement, facilitators – Four mothers appreciated engagement with the programme through the activities and homework tasks. This helped parents putting new skills into practice:

".. the worksheets and stuff and you kind of worked through it. Cause it was good to see the example and then to have it followed up with exercises that you sort of did immediately afterwards, which sort of made you think about it and also made you come up with a plan"

One parent mentioned that she appreciated the interactive aspect of the programme.

Programme content, barriers – Three mothers thought the programme was too generic. One mother was keen on knowing the reason behind her child's problem behaviour, and another mother mentioned wanting information on helping her child deal with anger. Also within this sub-theme, one mother felt that some of the content did not apply to her family. The second sub-theme, called opposed to strategies, included two mothers who were opposed to or struggled with certain strategies taught in the programme. One mother struggled with being a role model. Another mother was not comfortable with the time out strategy:

> *"I mean I have to say that with the time-out thing I still feel like that was too harsh with what I am comfortable, so and [name son] didn't react to it well at all so, for me I felt like that was, that I wasn't comfortable using that."*

Programme content, facilitators – All mothers who were interviewed said they expected to gain information about parenting or to learn new parenting skills. Nine out of 11 mothers reported the programme provided sufficient information on parenting and new parenting skills. This is illustrated by the following comments:

> *"I have got some tools, I mean some of that stuff I was already doing, but it just helped to really reinforce it and approach him differently, which had been meant that his, a positive change in his behaviour, because of the way that I am approaching certain situations now"*

> *"I am doing a lot of things right, and what it did it kind of added to that, so it gave me additional things to try. Like OK, you have got this part down, but what's the next thing you could try?"*

> *"But, just to have [..] those tips and actually highlighting those parent traps, we sort of get into and not really realizing that it is actually a bit of a parent trap and you sort of go like 'yep, I do that, oops bad' (laughing). So very, very helpful actually"*

> *"Now that I have got these tools I know there are things that I can do it is not as stressful"*

Programme pitch, which refers to the level of the programme and the length of the modules, was appreciated by four mothers. Two mothers enjoyed the thoroughness and variety of the programme. Another mother mentioned that the module's length was appropriate, which made her feel her goals were achievable.

Programme format, barriers - Four mothers were annoyed by the linearity of the programme. In order to progress from one module to the next, each exercise needs to be completed:

> *"I would have preferred to, which I did, just took my own way and just watch the videos and make my own things from that and worked with that. Like filling out all these things*

and then checking back up was quite hard for me to do, I am just not that good with routines."

The second sub-theme involved IT issues, with four families experiencing technical issues when using the online programme. These issues ranged from a frozen screen, trouble loading videos, to having to restart the computer, which caused frustration and long waiting times. Some issues were resolved by the Triple P IT support team, but other issues were due to a bad internet connection. The third sub-theme evolved around the reference material provided by the programme. Two mothers were keen on having reference material in paper format (in additional to the material that parents could download and print themselves) rather than digital only.

Programme format, facilitators - Six mothers appreciated the video feature of the programme. Parents felt reassured that the parents shown on videos were experiencing similar problems and were capable of solving those problems. The videos also enabled deeper understanding of the parenting information.

"It was just really helpful having those video clips and having other parents saying similar things. And knowing that, you know, they've worked around it, they've found that they could do it, I can do it too."

".. watching the video clips on the computer. All of the parents are experiencing similar difficulties in disciplining their children and a lot of them sound very positive about the gains that they've made."

"I thought it was really good, well, what I liked about it was the video parts where they were kind of talking to me and showing me, showing me other parents in activities with their children and how other children behaved, how other parents handled it. Just seeing those examples was really good."

In contrast with the two mothers preferring analogue reference materials such as a manual, five mothers were content to use the online programme as a reference, and they made use of the option to print their goals or to have a digital workbook. Finally, four mothers enjoyed the online aspect of the parenting programme. This meant that parents could complete the programme in their own time and at their own pace. The quote below illustrated the point particularly well:

"I liked that it was an online programme that you could do when it was suitable for you. Sometimes if it's a go-out-and-do-a-workshop type of thing, for whatever reason things come up and you might miss parts. Whereas when had it been online the way that it's designed, it's good because you could log in when it was a good time for you. And that way you get to be focussing on that when it's a good time and when you're really able to soak the information in."

4.1.2 Helpful strategies

All parents mentioned a range of parenting strategies that have helped them manage their child's behaviour. The strategies mentioned by most parents are discussed first, according to the order as shown in Table 4.2.

Table 4.2. Overview of Parenting Strategies Mentioned During Interviews

Parenting strategy	Parents using the strategy	Times mentioned
	n	*n*
Consistency	8	8
Remaining calm	7	13
Logical consequences	7	12
Praise	7	11
Quality time	6	10
Time-out	6	8
Planned activities routine	6	7
Behaviour charts	5	8
Start-stop-routine	5	6
Quiet time	4	6
Positive rule setting	4	5
Catch them being good	4	5
Setting good example	4	4
Ignoring minor misbehaviour	3	3
Parents on the same page	2	4
Having realistic expectations	2	4
Having interesting things to do	2	2
Directed discussion	2	2
Taking care of yourself	2	2
Ask-say-do	1	1

Eight parents, mentioned being more consistent in their boundaries as a helpful strategy. Remaining calm and having logical consequences to misbehaviour were strategies acknowledged by seven parents.

> *"I guess, the reinforcement of the parents staying calm and trying to be consistent, that is helpful."*

".. that he can't play up, that there is a consequence to his actions, so he stops, basically. He knows when to stop himself pushing my buttons and he knows he has to stop otherwise there'll be a consequence that he doesn't like, so. And mum will stick to it and I don't care what other people think [laughing]."

Praise was regularly used by seven mothers, to encourage good behaviour:

"Because we were so used to saying 'good boy, good boy [name of son]' and I think that has made a big change in our household as well, saying '[name of son], I really like how you are sitting nicely', 'I really like how you are using your quiet voice'. It was something I struggled with initially, not to just say 'good boy'."

Another strategy mentioned often (*n* = 6) was spending quality time together, or regularly giving short bursts of attention. This helped some parents being more present. Another strategy used by parents was time-out (n = 6) and behaviour charts (n = 5). With the latter strategy, children are rewarded for good behaviour by rewards they choose themselves, such as a trip to the beach, kicking a soccer ball around for ten minutes, or a chocolaty treat. Six mothers mentioned using the planned activities routine when going on an outing (e.g. shopping). With this routine the parent informs the child what is going to happen and what is expected of the child in terms of behaviour.

".. now, whenever we go out to the shops we always do a regular quick recap of what our shopping rules are before we go"

"And as well as how my knowing what I was gonna do rather than having to think of, you know each time, having a plan actually makes it easier to stay calm. So things don't escalate, as much.."

The start-stop-routine was mentioned by five mothers. This routine incorporates different strategies and entails the parent giving the child an instruction while being close and at eye level (e.g. 'come and sit at the table please'), waiting for five seconds and praising the child for complying or repeating the instruction when the child does not comply. A logical consequence would be given when the child does not comply after a second time asking.

"Yeah and I guess the other thing in terms of the more discipline ones [strategies], I guess it was sort of, the programme was sort of like tell them and then tell them again and if they don't act then there's a consequence."

Using quiet time as a step before time out was mentioned by four mothers, as was stating house rules in a positive manner:

"I like that about the rule setting too, that you know rather than saying "no you can't do this" more turn it around to behaviour that you want them to do. So in the house we walk, rather than don't run. So, I liked that sort of way turning things in the head."

Catch children being good was mentioned as a helpful strategy by four parents. This helped parents to encourage wanted behaviour, just like praise, and had even more encompassing results for one family:

> *"I love doing that now. Yeah I love doing that, well with my older son too. Just noticing them being good has, of course it makes them happy, to be praised, but it's just, I think it's making me nicer and happier in general because I am noticing the good things in life more. And I am finding that it's feeding into other areas, you know like I am noticing the pretty things when I am walking, you know, just little silly things like that, you know it's helping me to notice the good stuff."*

Setting a good example was also mentioned as a useful strategy (n = 4), although, as mentioned in section 5.2.1, this was not always easy.

> *"I became aware that actually myself and my husband weren't leading very well by example."*

Three mothers said they used planned ignoring when their child was showing minor problem behaviour:

> *"I like the ignore-the-bad-bit [laughing], if it's tolerable you now, ignore, I quite like that one. I'll just look away, don't engage, so.."*

The strategy of parents being on the same page was mentioned by two mothers. Another two parents were helped by having realistic expectations of their child:

> *"I think with the programme, reminding myself of their actual realistic expectations, for his age. Reminding myself he is only young, he is going to be going through big changes and to, take it easy on him, not as in letting him get away with stuff but, just that I need to be calm and he's gonna feed off that calmness himself."*

Having interesting things to do was mentioned by two mothers, as was directed discussion. With the latter strategy, parents reinstate the rule that was broken by the child by asking them to practice what they should have done. Two mothers mentioned taking care of themselves and arranging quality time with their partner as a useful strategy. Two mothers said they used planned ignoring when their child was showing minor problem behaviour:

> *"I like the ignore-the-bad-bit [laughing], if it's tolerable you now, ignore, I quite like that one. I'll just look away, don't engage, so.."*

The ask-say-do strategy was mentioned by one mother. With the ask-say-do strategy, the parent teaches their child a new skill by breaking up the skill in manageable parts (e.g. ask: 'What is the first step to brush your teeth?'; say: 'Put toothpaste on your tooth brush; do: put in on for the child if the child is incapable).

4.1.3 Hyperactive/inattentive child behaviour

With regard to hyperactive/inattentive child behaviour, mothers talked about a range of behaviours that changed over the course of the parenting programme and also of behaviours that need more improvement. All mothers mentioned an improvement in two or more hyperactive/inattentive behaviours, with one mother reporting on decreases in six different hyperactive/inattentive behaviours. Eight mothers said their children still showed hyperactive/inattentive behaviour difficulties. The different types of hyperactive/inattentive child behaviours mentioned during the interviews can be grouped into two themes, i.e. hyperactive/impulsive behaviours and inattentive behaviours. See Table 4.3 for an overview of the hyperactive/impulsive and inattentive behaviours that have and have not improved.

Table 4.3. Overview of Changes in Hyperactive/Inattentive Behaviours Following Intervention

	Improved	Parents *n*	Need for more improvement	Parents *n*
Hyperactive/impulsive behaviours	Restlessness	6	Restlessness	4
	Fidgeting	2	Fidgeting	2
	Getting up during meals	6	Getting up during meals	1
	Sleep deprivation	2		
	Interrupting	3		
Inattentive behaviours	Following instructions	10	Following instructions	5
	Independent solitary play	5	Independent solitary play	1
	Independent joint play	3	Independent joint play	1
	Independent reading	6		
	Independent TV	1		

Hyperactive/impulsive behaviours – Within this this theme five subthemes were found: a. Restlessness; b. Fidgeting; c. Getting up during meals; d. Sleep; and e. Interrupting.

Six mothers mentioned improvements with regard to their child's restlessness.

> *"No, he doesn't jump on furniture as much anymore when we visit people, at home he does. But he, no, he's not doing the jumping all over the furniture and all that kind of thing that very often now, no."*

> *".. oh no, he sits still, yeah, roughly"*

> *"No he can sit there for the whole 20 minutes, when he is really focussed on his car or train or Lego or something."*

".. he does sit still a lot better at dinner time as well"

Four mothers reported her child still showed restless behaviours, such as becoming overexcited and not being able to sit still.

"Yeah other little children seem to hype her up and she just can become quite overexcited and very active, yeah."

"But he is way better, he doesn't run away as much and yeah, but he still can't sit still."

While two mothers mentioned that her child was less fidgety, two other mothers thought their child was still fidgeting.

"Depends really. Sometimes he is really good and he, he's quite focused and his body is quite relaxed and stuff, but. I'd say half and half, I think that's just him, I think that's sort of always gonna be like that. I think it is something that he can't really control, when he's tired it gets a bit worse."

Six mothers mentioned that their child was better able to sit down during mealtime.

"He is sitting down and eating dinner, which is great. Not getting up as much as he was."

"Not so much, she doesn't get up as much, that's one of the rules that we have implemented and that we talked about as well."

One mother however, said her child got up and down from the table during mealtimes about twenty times. Two mothers mentioned improvements in their child's sleeping habits. Finally, not interrupting was improved according to three mothers.

Inattentive behaviours – Within this theme, another five sub-themes were detected:

- follow instructions;
- independent solitary play;
- independent joint play;
- independent reading;
- independent TV.

Ten parents mentioned that their child was better at following instructions after having completed the parenting programme:

"I think that he does listen to me better and do what I say better and that may just, that may be because I am being more consistent with the consequences and things like that."

“But he is a bit more, you can talk to him a bit more. We have the feeling that he is actually more listening to us.“

“Just, both of the boys they seem more quiet and more manageable for me when I am on my own with the two of them. Yeah the house is definitely more peaceful and quieter.”

Despite these improvements in following instructions, some mothers mentioned that their child still had difficulties listening.

“but we still have the age old listening and doing something straight away when asked. Yeah, that seems to be an ongoing battle.”

“I don't know, it's something we need to work on, cause she is now being a bit more disobedient, like she just not do what we ask, you know, simple things. Everything is a bit of a negotiation. I think we just need to go back to doing the time out. Yeah, we'll see.’

Independent solitary play had improved according to five mothers, with uninterrupted playtimes extended from a couple of minutes to half an hour. One mother said her child had not improved much following intervention. Improvements in independent joint play, was mentioned by three mothers, and one mother said her son still had difficulties in this area. Six parents said their child had improved on reading independently, although some said this change was due to maturation rather than a change in parenting practices.

“Yeah, no she really is much better at concentrating on things now. I mean, both of them are, it's not just an age thing, the two year old seems to be much better at it as well. They'll quite often pull out a stack of books and still be sitting there, you know, 25, 30mins later reading them.”

“Yes, yes, he's, he's been actually getting his books out and having a look at his books which is really, really lovely.”

Finally, one parent mentioned her child was better able to sustain attention when watching television.

4.1.4 Other positive changes

Besides changes, or lack thereof, in hyperactive/inattentive behaviours, mothers also mentioned a range of other positive changes following programme completion. Most of those improvements related to their child’s behaviour, which are discussed first. An overview of the findings is presented in Table 4.4.

Following intervention, four mothers mentioned their child being easier to handle:

“Yes, she is a lot easier to handle.”

"Well he is still having tantrums but they are far shorter, you know, they are far more manageable."

Another four mothers said that their child was less demanding after having completed the intervention:

".. not of my time but, as demanding of my attention so. Cause he would always be demanding my attention so that was quite full-on."

".. he is almost more, more secure, less demanding."

"So we just stuck in it, every time he asked, we gave him attention and he is definitely less demanding now."

Table 4.4. Overview of Other Positive Changes Following Intervention

	Improved	Parents *n*
Child behaviour	General behaviour	4
	Demandingness	4
	Gentleness towards others	3
	Calm voice	2
Parenting behaviour	Confidence	4

Three mothers noticed their child being gentler with others, which had been an important issue for one family in which the older brother (target child) frequently hit his younger brother:

"I guess the issue we were having was hitting his younger brother, which we've sort of been targeting that for about a year and we haven't managed to resolve it. And he's you know, recently stopped doing that all together."

"Yeah, yeah, I mean I definitely, the fact that he stopped hitting is quite massive, cause it means, you know in the past you know, we had days, some days when he's like constantly do it all day and the whole day becomes quite negative. "

Another two mothers were happy that their child yelled less.

"Actually I don' think she shouts anywhere near as much now. So that's such a thing I had forgotten that even speaking to you. Yes that's really not a problem anymore."

Finally, four mothers mentioned their increased confidence in parenting after having learnt new parenting skills and after having received information on parenting:

> *".. now that I have got these tools I know there are things that I can do it is not as stressful."*

4.2 Triangulation of Post-Intervention Interview Findings and RCT Results

The findings provided by the analyses of the post-intervention interviews were compared with the data provided by the RCT to examine to what extent the interview data supported the questionnaire data. As all parents in the interview subsample commented that their child had improved on at least two hyperactive/inattentive behaviours, this data was compared to the quantitative results reported on hyperactive/inattentive child behaviour at post-intervention. The mean scores and standard deviations of the 11 interviewed families on mother-, father-, and teacher-reported inattention/hyperactivity and mother-reported restlessness/impulsivity were compared from pre- to post-intervention to examine whether these behaviours had improved post-treatment. Table 4.5 shows that for all variables, except teacher-reported hyperactivity, the means decreased after the intervention, thus the interview findings were consistent with the questionnaire data on parent-reported improvements hyperactive child behaviours.

With regard to parenting strategies mentioned during the interview, all parents mentioned they still used at least one of the strategies of being consistent, calm, and using logical consequences. The extent to which parents are using these positive parenting strategies following the intervention was assessed by parent reports of post-intervention changes reductions in dysfunctional parenting practices including overreactivity, verbosity, and laxness. The pre- and post-intervention mean scores for these dysfunctional parenting practices were examined for the 11 interviewed parents. As shown in Table 4.5, all three dysfunctional parenting behaviours improved post-intervention. Thus the interview findings supported the improvements in self-reported parenting practices.

As consistent parenting is a key principle used to promote child compliance in parenting programmes such as Triple P (Sanders et al., 1998b) and Parent Child Interaction Therapy (PCIT; Eyberg & Robinson, 1982), it was of interest to examine the post-intervention changes in child defiance/aggression for the eight parents who said they were using more consistent parenting. There were noticeable decreases from pre- to post-intervention in mother- and father-reported defiance/aggression, which suggests that parental consistency may have played a role in improving child behaviour.

Table 4.5. Changes in Means and Standard Deviations in Interviewed Parents from Pre- to Post-Intervention (*n* = 11)

	Pre-intervention *M (SD)*	Post-intervention *M (SD)*
Hyperactive child behaviours		
Conners Inatt/Hyp-mother	74.73 (11.11)	61.73 (10.01)
Conners-short Inatt/Hyp-father	65.20 (12.16)	59.51 (6.69)
Conners Rest/Imp-mother	75.18 (10.91)	62.55 (9.57)
SDQ Hyperactivity-teacher	1.71 (3.15)	1.72 (1.96)
Dysfunctional parenting practices		
PS Overreactivity	2.92 (0.79)	1.94 (0.54)
PS Verbosity	3.19 (0.92)	2.42 (0.92)
PS Laxness	2.49 (0.66)	1.91 (0.54)
Child conduct problems		
Conners Def/Aggr	76.00 (14.56)	63.73 (11.34)
Conners-short Def/Aggr	76.00 (10.58)	70.18 (5.65)

5 DISCUSSION

The current study was the first to examine the efficacy of a self-administered, online parenting programme in a sample of families with pre-schoolers displaying hyperactive/inattentive behaviour difficulties. The aim of this chapter is to discuss the extent to which the current study addressed the gaps in existing literature with regard to parenting interventions that target preschool hyperactivity/inattention. First, the results of the RCT are discussed, followed by the results of the post-intervention interviews. Then, the extent to which parental ADHD, consumer satisfaction, and having sought additional help with parenting, influence intervention outcomes are discussed. Next, the key contributions, limitations of research and, practical implications of the study are discussed, followed by the future directions. This chapter closes with a final comment.

5.1 Summary and Discussion of Key Findings from the RCT

5.1.1 Child behaviour

It was hypothesized that in comparison to the delayed intervention condition, the intervention condition would report lower levels of hyperactive/inattentive child behaviour following intervention. The post-intervention data showed support for this hypothesis, with a statistically significant medium effect size for mother-reported inattention/hyperactivity and a small effect size for restlessness/impulsivity. Medium effect-sizes were found for father-reported inattention/hyperactivity and for teacher-reported hyperactivity. However, these effects were not significant. Although statistical significance allows comparison of treatment effect by statistically comparing the change across two or more conditions, it does not indicate the clinical significance of the effect, nor does it provide information on the within-treatment variability of outcome (Jacobson & Truax, 1991). At Time 2, in comparison to the delayed intervention parents, intervention parents achieved greater proportions of reliable and clinically important changes on child behaviour outcomes, including mother-, and father- reported inattention/hyperactivity and mother-reported restlessness/impulsivity. These results indicate that the father-reported intervention effect on child hyperactivity was meaningful in a clinical, if not statistical manner. With regard to mother-reported inattention/hyperactivity and restlessness/impulsivity, evidence was provided for both the statistical, and the clinical significance of the intervention effects. The post-intervention effects of reduced hyperactive/inattentive child behaviour obtained in the current study corroborate the findings reported by Sonuga-Barke et al. (2001) and Thompson et al. (2009) based on the New Forest Parenting Programme (NFPP; Weeks et al., 1999) on reductions in hyperactivity as measured by the Parental Account of Child Symptoms (PACS; Taylor et al., 1991). Effect sizes on changes in child hyperactivity reported by these studies were medium to large, while the current study's effect sizes were small to medium, which may be partly explained by the different type of outcome measures used (that is, interview compared to

questionnaire measures). Another study that tested the NFPP (Abikoff et al., 2014), used the Conners Rating scales, as the present study did to measure post-intervention improvements in child hyperactivity. However, unlike the current study these findings were not confirmed by teacher ratings of child hyperactivity. The present findings are also consistent with Jones, et al., (2007) who reported post-intervention reductions in preschool hyperactivity as measured by the Conners Rating Scales based on the Incredible Years programme (IY; Webster-Stratton et al., 2011). It must be stressed however, that the current findings are based on a self-help version of the parenting programme, and compared to results obtained from face-to-face parenting interventions that were run by practitioners.

Follow-up assessments at six months post-treatment indicated that the intervention effects were maintained for mother-reported inattention/hyperactivity and restlessness/impulsivity. The absence of statistically significant differences between the intervention group and the delayed intervention group may be explained by mothers in the delayed intervention group reporting reductions in inattentive/hyperactive and restless/impulsive child behaviours from post-intervention to follow-up, while intervention group mothers reported a slight increase in these behaviours. In spite of these shifts in reported hyperactive child behaviours, the intervention group remained below the clinical cut-offs, whereas the delayed intervention group did not. Another possible explanation for the lack of statistically significant differences in inattention/hyperactivity and restlessness/impulsivity at six months post-treatment could be that some children with associated executive function impairments may require a more intensive level of intervention for a reduction in hyperactive/inattentive symptoms to be maintained over time. In the current study, children with elevated levels of deficits in executive functions were less likely to show maintenance of intervention effects in hyperactive/inattentive behaviours and were more likely to show slight increases in those behaviours. The study by Abikoff et al. (2014) also failed to obtain long-term outcomes for child hyperactivity, except for inattentive problems. The current study included teacher-ratings of hyperactive child behaviour to address the limitation of reliance on maternal reports solely. However, at 6-month follow-up the intervention effect was small and non-significant for teacher-reported hyperactivity. The low mean scores on the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) indicate that on average the teachers did not observe extreme levels of hyperactive behaviours at preschool, although a few children had extreme scores. A possible explanation is that many of the children in the sample showed situational hyperactive/inattentive behaviour only (i.e. at home), rather than pervasive hyperactive/inattentive problems (i.e. across multiple settings). The lack of change in teacher-reported hyperactive behaviour could also be explained by the SDQ being more suited for screening purposes, as this measure may not be sensitive enough to detect the range of hyperactive/inattentive behaviours that can be found using other measures, such as the Conners Rating Scales.

The second hypothesis predicted a greater decline in defiant/aggressive child behaviours for the intervention group children as compared to the delayed intervention group. The post-intervention data did not support this prediction. In fact, the medium effect size found for change in mother-reported defiance/aggression at T2 indicated greater decreases for the delayed intervention group in comparison to the intervention group, and both groups remained within the clinical range at post-intervention. This

unexpected finding was not confirmed at T3, when the intervention group reported decreases in mother-rated defiance/aggression from post-intervention to follow-up, while the delayed intervention group reported increases in these behaviours. The correlation between the Defiant/Aggressive Behaviours scale and the Inattentive/Hyperactive scale of the Conners at pre-intervention indicated that in the current sample a substantial number of children had comorbid conduct problems, confirming previous findings (Bendiksen et al., 2014) regarding comorbidity rates between these behaviour difficulties.

In addition, it was hypothesized that the intervention condition would report greater improvements in social functioning following intervention than the delayed intervention condition. Post-intervention data supported this hypothesis as statistically and clinically significant results were found for improvements in mother-reported difficulties with social functioning and teacher-reported prosocial behaviour, both with medium effect sizes. Apart from the study by McGoey et al. (2005) on the efficacy of the Incredible Years (IY), no other parenting programme targeting preschool hyperactivity obtained improvements in child social functioning. In this study, IY was combined with a classroom intervention and improvements in child social functioning were only obtained for mother ratings and not for teacher ratings, within a sample of children of whom some were taking medication. This means that the current findings add to the existing literature by providing evidence for both mother- and teacher-reported improvements in child social functioning, without the confounding factors of an additional intervention component and medication.

The post-intervention effect on teacher-reported peer problems was medium in size, but statistically not significant. This may be because peer problems were measured by the Strengths and Difficulties Questionnaire, which, is more suited for screening purposes and may not be sensitive enough to detect intervention effects. The lack of intervention effects for father ratings of child social functioning might be due to fathers being less knowledgeable about their child's social behaviours. An alternative potential explanation is the lack of explicit involvement of fathers by the programme as the programme did not target specific aspects of fathers' parenting that may have been relevant for child social functioning. The improvements in parent-ratings of social functioning were maintained at the six-month follow-up assessment. However, the condition effects were not significant, as the delayed intervention group also reported improvements in this area, although to a lesser extent than the intervention group. Both conditions remained below the clinical cut-off at follow-up. The trends in the teacher-reported social functioning data indicate that the improvements were maintained at follow-up. However, teachers of children in the delayed intervention group also reported increases in prosocial behaviour, hence the lack of statistical significance. Another potential explanation for the lack of intervention effects for social functioning is the absence of severe social functioning problems at pre-intervention, which is indicative of a ceiling effect.

5.1.2 Parenting, parent mental health, parenting satisfaction and self-efficacy

With regard to parenting, it was hypothesized that the intervention condition would show greater decreases in overreactivity, verbosity, and laxness and greater increases in positive parenting as

compared to the delayed intervention condition. The post-intervention and follow-up data confirmed this hypothesis for dysfunctional parenting and medium to large effect sizes were obtained for overreactivity, verbosity, and laxness across both time points. Almost half (48.1%) of the mothers in the intervention group compared to 7.7% of the mothers in the delayed intervention group moved outside the clinical range for overreactivity from pre- to post-intervention. The percentages of participants moving out of clinical range were more similar across the conditions for verbosity and laxness, which can be explained by a lack of scores within the clinical range for all participants. Post-intervention effects were also found for positive parenting, as measured by the authoritative parenting scale, with a statistically significant medium effect size. At the six-month follow-up, the effect size was small and statistically not significant. Current findings corroborate the results reported by Abikoff et al. (2014) for the efficacy of the New Forest Parenting Programme (NFPP), on improvements in positive parenting practices such as appropriate disciplining. In addition, current findings extend previous reports of reductions in dysfunctional parenting practices following Triple P targeting parents of children with ADHD symptoms (Rogers et al., 2003), by including a control group and a follow-up assessment. Except for the study by Abikoff et al. (2014), which looked at positive parenting measured by the Parenting Practice Interview, no other parenting programme for preschool hyperactivity/inattentiveness has found these improvements in dysfunctional parenting practices six months following intervention. It is likely that the behaviour management techniques that parents acquired by participating in the Triple P Program, such as using praise effectively, giving clear concise instructions, and effective limit setting within the context of positive sensitive parenting, may have promoted their child's self-regulatory skills, which in turn may have helped to their reduce hyperactive/inattentive behaviour difficulties (Daley et al., 2009).

It was also hypothesized that there would be a greater reduction in parental stress, depression, and anxiety for intervention parents than delayed intervention parents. Both post-intervention and follow-up data confirm this hypothesis and statistically significant, medium effect sizes were found for stress and depression at post-treatment and for anxiety and depression six months later. A statistically significant, large effect size was obtained for stress at the six-month follow-up. The intervention effects on parental stress may be partly explained by the intervention effects on child hyperactivity (mother-rated), as one study provided evidence for an interaction between these variables (Beernink et al., 2012). One Triple P study (Rogers et al., 2003) targeting children with ADHD symptoms also found reductions in parental stress, depression, and anxiety, however, no control group or follow-up assessment was used. One other study (Matos et al., 2009) examining a parenting programme targeting preschool hyperactivity reported a reduction in maternal stress, an effect which was maintained at the three-and-a-half-month follow-up assessment. In a review by Barlow, Smailagic, Huband, Roloff, and Bennett (2014) the authors conclude that group-based parenting programmes improve parental depression in the short term. The current findings extend existing research by providing evidence for the effect of TPOL for parents of children with hyperactivity/inattentiveness on parental stress, depression, and anxiety, both at post-intervention, and six months following treatment.

Finally it was hypothesized that following intervention, parents in the intervention condition would report greater increases in parenting satisfaction and self-efficacy than parents in the delayed intervention condition. The post-intervention and follow-up data provide evidence for the increase in parenting satisfaction and self-efficacy, with large, significant effect sizes across both time points. This extends findings of another Triple P study (Rogers et al., 2003) by including a control group and a follow-up assessment six months post-treatment and also by providing evidence for positive changes in parental well-being following a self-administered, online version of the programme. Self-efficacy is associated with parenting behaviours such as maladaptive disciplining and may influence the level of engagement with optimal parenting (Jones & Prinz, 2005). A lack of improvement in behaviour following parenting interventions has been associated with low self-efficacy in parents (van den Hoofdakker et al., 2010). The current findings are of importance, given the additional challenges of having a child with hyperactivity/inattentiveness, which may undermine parenting competence (Primack et al., 2012). The present findings are consistent with the suggestion by Daley et al. (2009) that parent training programmes like Triple P may help to reduce parental stress associated with parenting a child with hyperactive/inattentive behaviour difficulties by teaching parents parenting skills, such as effective coping, problem-solving, and communication,

In their review of the benefits of parenting interventions targeting ADHD on outcomes other than ADHD Tarver et al. (2015) cite evidence linking parenting self-efficacy with parental warmth and involvement. Tarver et al. argue that interventions targeting children with ADHD, without the requirement of parental input, may not increase parental self-efficacy. This suggestion was based on Bandura's belief that self-efficacy may be enhanced by the mastery of skills if parents accredit the mastery to themselves (Bandura, 1977). The post-intervention increase in self-efficacy found in the current study confirms the idea proposed by Tarver et al. The notion also implies that parenting strategies taught by Triple P enable skill mastery that enhances self-efficacy by allowing parents to acknowledge their role in the process. This is also underscored by the theoretical and empirical basis of the programme, which is aimed at developing self-regulatory skills of parents (Sanders, 2012). The two telephone consultations with a qualified Triple P facilitator may also have played a role in connecting parent's effort and positive changes in their parenting behaviour, thus increasing parenting self-efficacy. This suggestion is based on the meta-analysis by Daley, van der Oord, et al. (2014), in which the authors suggest that increased parenting confidence could be a result from working with therapists who acknowledge parental approaches and their positive effects.

These findings suggest that a parenting programme targeting preschool hyperactivity can also lead to improvements in social functioning. As the current research findings also supply evidence for the efficacy of TPOL in increasing parenting self-efficacy, and a body of research has linked parenting self-efficacy with children's social functioning (Ardelt & Eccles, 2001; Jones & Prinz, 2005), it may be possible that improvements in child social functioning can be obtained by increasing parenting self-efficacy. A potential explanation for children's improved prosocial behaviour is the reported decrease in lax parenting in the current research. As Keown and Woodward (2006) explain in their study on early peer functioning for boys with hyperactivity, by exposing children to effective parental discipline strategies, children are more

likely to learn how their own behaviour affects their relationships with others and to gain prosocial, relationship-enhancing skills needed for successful peer interactions. Similarly, Keown and Woodward (2002) suggest that parental limit setting may assist children with regulating their own behaviour, which may partly explain the current findings on decreased child hyperactivity.

5.2 The Findings of the Post-Intervention Interviews

The aim of the post-intervention interviews was to collect in-depth information on participants' experiences with the online Triple P programme. Specific areas of interest were programme satisfaction, implementation, and barriers to implementation. Due to the small size of the subsample (*n* = 11), and that the sample comprising intervention group mothers who reported lower levels of overreactivity and laxness than other intervention group parents. The findings are indicative and not conclusive. The facilitators and barriers to implementation are discussed first, moving on to helpful strategies and closing off with changes in hyperactive/inattentive child behaviour and other positive changes.

5.2.1 Barriers and facilitators

With regard to the barriers, time constraints were mentioned most frequently. Although this finding corroborates the barriers mentioned by Koerting et al. (2013) in their review on barriers and facilitators of parenting programmes, it was unexpected considering the online aspect of the programme allowed participants to complete the programme in their own time. However, time constraints could reflect difficulties with committing to the programme. Four mothers mentioned their partner not being involved as a barrier, which for some resulted in reverting back to ineffective parenting strategies such as shouting. A similar finding was reported in the review by Koerting et al. (2013) where three parents described how a lack of support from other family members undermined consistent use of strategies taught. Two mothers further mentioned their need for more reminders, which could fit in with the barrier mentioned by Koerting et al. (2013) of having difficulties with following the programme. In addition, there were three mothers for whom the programme's content was too generic, expressing their need for information on dealing with anger, sleeping problems, and the reason behind behaviour difficulties. Although these points were covered by the programme, some parents may have benefitted from some additional phone support to implement the programme. The second and last barrier regarding programme content comprised two mothers struggling with certain strategies taught in the programme. It should be noted that the programme teaches a set of skills, from which parents are free to choose. With regard to facilitators, most interviewed mothers mentioned that the content of the programme met their expectations in terms of providing information on parenting. With regard to the format of the online parenting programme, four parents were annoyed with its linearity (i.e. the modules need to be completed sequentially). This irritation may be understandable when a certain topic is considered either irrelevant or a chore.

With regard to facilitators, only a few parents mentioned the online aspect as a facilitator, which was unexpected given the findings by Koerting et al. (2013) regarding practical issues being a barrier for

parents, as having an online format would solve having to arrange practicalities such as transport and child care. In addition, four mothers said that the programme offered engaging activities, while one mother found the programme interactive. These facilitators are indicative for the online programme being engaging enough to help some parents with following the programme, something that may have been problematic for some group-based parenting programmes. Helpful strategies may be considered other facilitators of the programme.

5.2.2 Helpful strategies

Being consistent was mentioned by eight parents as one of the key strategies that parents still used. The Triple P programme specifically teaches consistency to reduce noncompliance. Parents who had mentioned being consistent as a strategy reported reductions in their child's defiant/aggressive behaviour following the intervention, indicating a link between consistency and conduct problems. Remaining calm as a parent, is a strategy which may be negatively linked to dysfunctional parenting practices such as overreactivity and laxness. The RCT data confirmed this link by showing reductions in overreactivity, verbosity, and laxness for those mothers who mentioned being calm as a regularly used strategy. The demonstrated use of all mentioned parenting strategies taught by the programme, supports the intervention effects found for reductions in dysfunctional parenting and further demonstrated the benefits of Triple P Online for parents of preschool-aged children with hyperactive/inattentive behaviour difficulties.

5.2.3 Changes in hyperactive child behaviour and other benefits

All interviewed mothers reported at least two hyperactive/inattentive behaviours in which their child had improved over the course of the online parenting programme, which was confirmed by looking at the improvements in hyperactivity scores of the 11 interviewed parents from pre- to post-intervention (see section 4.2).

Other improvements that mothers talked about during the interviews include independent reading and independent play. Being able to read and play independently, and also being able to follow instructions are some of the behaviour competencies that facilitate a successful adaptation to school (Rafoth & Buchenauer, 2004). Mentioned by six mothers was the reduced amount of times their child got up from the table during mealtimes, although another mother said her child was still constantly up and down at the table. Other positive changes related to child behaviour include generally improved behaviour, a decrease in demandingness, an increase in gentle interactions, and an increased use of a calm voice. Finally, four mothers mentioned their increased confidence as one of the benefits of taking part in the programme. Thus the interview data provide a more in-depth insight into the specific improvements in child hyperactivity for some of the families who participated in the programme.

In summary, the findings regarding the open-ended questions provide insight into parents' experience with using Triple P Online, both in terms of barriers and facilitators. This qualitative part of the research also complements and provides partial support for the quantitative RCT part of the current research. An example of the interview data supporting the RCT findings is that interviewed mothers who mentioned being consistent in their parenting reported lower levels of defiant/aggressive child behaviour through questionnaires. An example of how the interview findings complement the RCT findings, are the reported improvements on independent reading and play time, thereby providing insights in changes in preschool hyperactivity relevant to child functioning, such as school readiness. These insights may not have been obvious from the RCT findings.

5.3 Influences on outcome

The study also explored potential influences on outcome following treatment. It was hypothesized that intervention group parents with elevated levels of ADHD symptoms would report fewer improvements in parenting and child behaviour than intervention group parents without elevated levels of ADHD symptoms. The current data support this hypothesis by providing evidence for the association between parental ADHD and elevated levels of mother-reported child inattention/hyperactivity and social functioning six months following treatment, confirming the association between ADHD and social behaviour (Barkley, 2014; Keown & Woodward, 2006). The findings on hyperactivity and their link with parental ADHD are similar to those reported by Sonuga-Barke, Daley, et al. (2002), who also used the Werry-Weiss-Peters Activity Scale (WWP; Routh, 1978) and the Parental Account of Child Symptoms (PACS; Taylor et al., 1991) to measure child hyperactivity. However, the present study did not provide a replication of their findings regarding lower levels of parenting satisfaction and self-efficacy, or a confirmation of the association between parental ADHD and dysfunctional parenting, as was suggested by Chronis-Tuscano et al. (2011).

It was further explored whether outcomes would differ when examining the influence of parental ADHD separately for mothers and fathers. Analysis confirmed the association between parental ADHD and child social functioning for mothers, but not for fathers. As mentioned above (section 5.1), this may be explained by the programme not targeting specific aspects of fathers' parenting that may be associated with child social functioning. In addition, at post-intervention, mothers with clinically elevated levels of ADHD symptoms were significantly more stressed than mothers with low levels of ADHD. A similar association may have been found if the study had included paternal measures of stress. Finally, it was found that mothers with medium levels of ADHD symptoms reported more laxness than mothers low on ADHD symptoms. As mothers with high levels of ADHD were also low in laxness, this finding cannot be easily explained. A larger sample may have provided more power to investigate the potential moderating role of parental ADHD, and the differential influence of parental ADHD for fathers and mothers separately.

The final hypothesis predicted a smaller post-intervention reduction in child hyperactive behaviours for children with elevated levels of deficits in executive functions as compared to children with lower levels

of deficits in executive functions. Although the association between hyperactivity and executive functioning as suggested by the literature (Barkley, 1997; Sonuga-Barke et al., 2005) was confirmed, as 77% of the children in the sample had clinical levels of deficits in executive functioning, no significant correlations were found between executive functions and post-intervention or follow-up scores on hyperactive child behaviours. As executive functions comprise a range of self-regulatory skills, such as working memory and inhibition (Sergeant et al., 2002), it may have been beneficial to examine the influence on child hyperactivity outcomes for each distinct skill separately.

It was further explored whether the degree of consumer satisfaction would affect the outcomes in positive parenting and dysfunctional parenting practices. This had not yet been investigated, although Koerting et al. (2013) suggested a number of barriers and facilitators of parenting programmes for child behaviour problems, which are likely to be indicative of satisfaction with parenting programmes. Level of consumer satisfaction within the intervention group and feedback on the services provided by the programme were well above average in the current study. Families high in consumer satisfaction reported greater increases in positive parenting practices following intervention than families low in satisfaction, with a large effect size. Six months later, highly satisfied parents reported significantly greater decreases in laxness than parents low in consumer satisfaction, also with a large effect size. These findings confirm Eyberg's (1993) hypothesis that consumer satisfaction may play a role in maintenance of the newly acquired parenting skills.

5.4 Key Contributions

The two parts of the study, namely the RCT and the post-intervention interviews, jointly and separately demonstrated the positive impact of the online self-help Triple P Positive Parenting Programme for parents of preschool aged children with hyperactive/inattentive behaviour difficulties. No previous studies have examined the efficacy of an online self-help programme within such a sample. While the New Zealand Ministry of Health provides no clear recommendation for the treatment of preschool hyperactivity (Ministry of Health, 2001), group-based parenting programmes are currently recommended in the UK to help parents of pre-schoolers with hyperactivity (O'Brien & Daley, 2011). The current research provides evidence for the usefulness of online self-help as a first-step-approach in treating preschool hyperactivity. With the increased availability of internet, parents may feel at loss in the sea of parenting information. A body of research exists on the efficacy of Triple P, and by adding the current evidence regarding the efficacy of the online variant, parents may be offered an online programme which is likely to be effective.

Another contribution of the current study was the addition of semi-structured interviews to gain insight into the experience of some parents in terms of which aspects of the programme were helpful in managing their child's behaviour and the benefits of and barriers to participation For example, the interview findings painted a more nuanced picture of the programme's effect on hyperactive/inattentive child behaviour, then the RCT findings alone.

The methodological improvements, which addressed some of the limitations of previous research, are a further contribution of the study. Firstly, by including mother-, father-, and teacher-ratings of child hyperactivity the limitations of relying solely on maternal reports and of measuring hyperactivity in one setting have been addressed, although the intervention effects were not confirmed across informants and settings. Secondly, as the hyperactivity results were obtained by using a developmentally and psychometric appropriate measure, the limitation of previous research in terms of measurement issues was successfully addressed, as was the lack of evidence for an online self-help parenting programme in reducing preschool hyperactivity. Thirdly, the use of parent- and teacher-ratings of the child's social functioning, allowed validation of the findings in terms of different informants/settings. Validation across informants and settings minimizes the risk of self-report bias and same source variance, which can occur when obtaining information on parenting and child behaviour from the same source (Danckaerts & Taylor, 1995). Fourthly, the inclusion of the six-month follow-up assessment for both the intervention condition and the delayed intervention condition, addressed the issue of providing long-term evidence for the efficacy of the parenting programme, as did the inclusion of a control group.

With regard to the findings, the study contributed new findings by providing evidence for the efficacy of Triple P Online in reducing mother-rated preschool inattention/hyperactivity, restlessness/impulsivity, and problems with social functioning at post-intervention. Evidence for the efficacy of the programme was also found for teacher-rated prosocial behaviour at post-intervention. The study further contributed by supplying evidence for the effectiveness of the online parenting programme for short-term improvements in mother-reported positive parenting and laxness. Short- and long-term improvements were found for mother-rated overreactivity, verbosity, parental stress and depression, and for parenting satisfaction and self-efficacy. Finally, long-term evidence was found for decreased parental anxiety. The findings also suggest that parental ADHD and consumer satisfaction may influence treatment outcomes. Clinical levels of parental ADHD at pre-intervention seems to be associated with child hyperactivity and social functioning six months following treatment, and maternal ADHD appears to be related to higher levels of stress at post-intervention. High levels of consumer satisfaction were related to higher levels of positive parenting at post-intervention and lower levels of laxness at six-month follow-up. The findings further confirmed time constraints as a barrier of programme implementation and the role consumer satisfaction plays in skill maintenance. Finally, the findings extend existing literature by providing evidence for the long-term intervention effects on parental depression.

5.5 Limitations

A number of limitations of the current study need consideration in terms of their impact on the interpretation of the findings. There was an average time lapse of ten months between recruitment and programme access. This may have had an impact on the drop-out rate, which was 13.21% for the delayed intervention group. Some other parenting intervention studies with a similar follow-up period reported much lower drop-out rates for the control group such as no missing data for the control group for the study by Markie-Dadds and Sanders (2006a) and only 2.9% attrition loss for the study by Abikoff et al. (2014).

However one study by Markie-Dadds and Sanders (2006b), which also involved a self-directed version of Triple P, reported a drop-out rate of 43%. However, the presence of a control group at the six-month follow-up enabled the intervention group outcomes to be compared to the delayed intervention group outcomes, thereby providing evidence for the maintenance of the short-term intervention effects. Also a limitation is the total sample of 53 families, compared to the projected sample size of N = 80. A possible explanation for the smaller than expected sample size is the strict inclusion criteria for hyperactivity/inattentiveness, which led to the rejection of 22 interested families, and the remaining inclusion criteria, such as ongoing support for psychological problems and having no access to the internet, which led to the rejection of another 24 families. A larger sample size may have provided a greater power to detect long-term intervention effects on child hyperactivity. In addition, the sample was predominantly New Zealand/European parents of high socio-economic status, which limits the extent to which findings can be generalized to other groups of parents. Given these parent characteristics it may be that the final sample reflected more engaged parents. It may also be the case that 'difficult to treat families' may need more face to face input to motivate parents and to 'hold through change' than is possible with an online intervention (McEwan et al., 2014).The shortage of low SES parents in the current sample may be due to the online delivery format of the parenting programme, with low income families potentially having less access a computer and to the internet. Another explanation is that low income families may spend more time in paid jobs to provide family income and may therefore have less time and opportunity to participate in a research project.

There were a number of measurement issues that may have impacted the findings. As 65% of all teacher data was missing at the final assessment, there were too few teacher reports to analyse whether intervention effects were maintained. The large attrition loss was due to children transitioning from preschool to primary school. Most schools did not respond to any form of contact regarding obtaining information by teachers. Another potential limitation was that parenting measures were solely based on maternal reports. Although this is common in parenting intervention research, including an observational measure or parental ratings of the other parent's behaviour would have enabled comparison of assessments and the potential of corroboration of the results as well as reducing the possibility of self-report bias. As the current study sample included parents across New Zealand, it would have been challenging to incorporate observational measures. However, given sufficient funding it may have been an option to use online video observations of parent-child interactions, created by the participants, similar to work done by Feil et al. (2008). In the study by Feil, a face-to-face parenting programme was adapted to an online delivery format and parents were provided with recording equipment to video themselves using parenting strategies they had learnt, which were then viewed by the researchers. A similar observation technique could be used to answer specific questions around implementation of the parenting strategies.

A further possible limitation of the study that could have impacted the results were the changes to the usability and functionality of the programme in the early stage of this study, i.e. reminder emails, the ability to complete the programme on mobile and tablet devices, increased server speed, and the low resolution option for videos. It seems unlikely, but these changes may have affected the completion rate of

parents who had access to these features, which, in turn may have influenced the intervention outcomes. With regard to the post intervention interviews it should be acknowledged that being interviewed by the researcher may have led to bias in parental responses to the questions. Parents may have felt pressurized to answer positively, as most parents had expressed their gratitude for participating in the trial. Ideally, with adequate funding, the interviews would have been carried out by an independent interviewer. However, the interview transcripts indicated that parents were able to provide honest comments about aspects of the programme that posed barriers to completion. Furthermore, it should be noted that the subsample for the post-intervention interviews consisted of only 11 parents. Therefore the qualitative findings should be considered exploratory and should be followed up by future research. Finally, some mothers who were interviewed mentioned their partner being less involved in completing the programme as a barrier to successfully implement the strategies learnt. This may be due to some of the current study's features, such the differential treatment of fathers and mothers as informants of the intervention effects and the lack of a specific invitation for both parents to participate in the programme. Out of consideration, secondary caregivers (n = 51) were sent a smaller set of questionnaire than primary caregivers. This may have caused fathers to believe their opinion was less appreciated, or that the programme was directed at mothers, thereby evoking a lack of involvement (Frank, Keown, & Sanders, 2015). Whereas by expecting the same input from father and mothers, fathers' beliefs about the relevance of the programme and their motivation to complete it may have been positively influenced (Fisher, 1993).

5.6 Practical Implications

Parents seeking support for managing their child's hyperactive/inattentive behaviour are likely to display ADHD symptoms themselves. As ADHD is associated with poor executive functioning, these parents may struggle with self-regulatory processes such as planning, prioritizing behaviour, and resisting distracting information, which interfere with the completion of a self-administered parenting programme. Taking this into consideration, there may be an entry level of self-regulatory capability, to successfully complete a self-help programme, or to even consider taking part in such a programme, which may to be the case in the current study, considering only one third of the mothers and fathers reported clinically elevated levels of ADHD symptoms.

In line with literature suggesting that organized instruction in combination with reflection promotes self-regulation (e.g. Schraw, Crippen, & Hartley, 2006), the online features of the programme, such as engaging activities, videos, and prompts to reflect on practiced skills, may have promoted self-regulatory processes in parents. This would explain the positive intervention effects. Although the lack of long-term effects on child hyperactivity may be due to a lack of power, it is also possible that certain adjustments to the programme are necessary to accommodate parents dealing with preschool hyperactivity. A first suggestion is to incorporate a schedule at the start of the programme, in which parents can allocate time to complete the programme. Whenever parents fail to comply with their own personalized schedule, the programme then uses email or text to remind the participant of their commitment. A second suggestion is to allow users to move more freely between the different components of the programme. This way parents

can skip certain topics when deemed irrelevant and avoid frustration. However, there should still be a fixed structure which prompts users to complete the programme in a sequential way. Besides accommodating self-regulatory processes, this structure is needed as some parents may skip the positive parenting strategies to go straight to managing misbehaviour, thereby missing information potentially essential to success. Some of these suggestions may also address some programme barriers raised by parents who did not have elevated levels of ADHD symptoms.

A second implication for programme developers is the involvement of consumers in the evaluation of parenting programmes to inform further programme development. In the current research parents have supplied unique information on barriers and facilitators on the use of Triple P online for parents of preschool children with hyperactivity Irrespective of intervention outcomes, consumers' perception of the programme's efficacy and relevance provides valuable information that can be used to further refine programmes and influence the subsequent level of consumer participation and satisfaction (Sanders, 2012; Whittingham, Sofronoff, Sheffield, & Sanders, 2009).

A third and final practical implication is the need for a more detailed policy by the New Zealand Ministry of Health, for parents of pre-schoolers with hyperactive/inattentive behaviour difficulties. The high prevalence rates of preschool hyperactivity, the high comorbidity rates with conduct problems, and the poor long-term outcomes highlight the need for early interventions. As medication alone does not provide sufficient treatment (Riddle et al., 2013), and as some parents may be opposed to medicating their preschool-aged child, there should be a stronger focus on providing parenting interventions. Parenting interventions are considered an effective approach to targeting preschool hyperactivity (Mulqueen, Bartley, & Bloch, 2013), and the current research evidence supplies evidence for the efficacy of online parenting self-help. Recommendations for parents dealing with preschool hyperactivity should take these findings into account and should be more specific.

5.7 Future Directions

A number of suggestions can be made that build on the current findings. First of all, the present study should be replicated to corroborate the findings. This replication study should address the limitations mentioned in section 5.5, such as having a larger sample size, including parents of diverse ethnic backgrounds, and involving fathers in each step of the research process (i.e. screening, questionnaires, telephone sessions, and post-intervention interviews). To recruit a more representative sample Maori and Pacific Island advisors could be enlisted to help recruit participants from these ethnic groups. One way to try and increase the sample size might be to use parent testimonials from participants who have finished the programme to help convey the usefulness of participation. Secondly, although the current findings are based on data from multiple informants and data collection methods, inclusion of an observational measure of parenting would enable corroboration of findings for self-reported parenting. Thirdly, inclusion of post-intervention measures of executive functions would enable the evaluation of this variable on intervention effects and associations with post-intervention changes in hyperactivity could have been

further explored. Fourthly, future evaluations of parenting interventions could expand the measurement of parenting to include other variables shown to be related to preschool hyperactivity including less authoritative paternal parenting practices, less maternal warmth, and lower quality of parent-child interactions (e.g. Keown, 2011; Olson et al., 2002). Fifthly, a deliberate selection of parents with elevated levels of ADHD symptoms may allow examination of the moderating role of parental ADHD symptoms. A final recommendation for future research is to compare face-to-face delivery with online delivery. For example, the effects of group Triple P could be contrasted to Triple P Online and to a control group in a sample of parents of pre-schoolers with hyperactivity.

5.8 Final Comment

The quality of parenting not only influences the family involved, but also the broader community, and ultimately, the society. Raising confident and capable children starts with educating parents to become skilled and confident. The current findings emphasize that parents' confidence, behaviour, and well-being can be improved by completing an online parenting programme. Parenting programmes, including online and self-help versions, are an important tool in improving the lives of families dealing with preschool hyperactivity, warranting past, current, and future research.

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Appendix A: Participant Information Sheet (Parent)

Project title: Evaluation of an online parenting programme for parents of 3-4 year-old children
Researcher: Nike Franke

Dear Parents,

My name is Nike (Nika) Franke. I am a doctoral student, with the Parenting Research Group at the Faculty of Education, University of Auckland. The Parenting Research Group conducts research looking at the effectiveness of the Triple P Positive Parenting Program. The current project is investigating the effectiveness of the online self-help version of the Triple P Positive Parenting Program. We are inviting parents of 3-4 year children, who have some concerns about their child's overactive and/or inattentive behaviour to participate in the project.

What is involved with the Triple P Online?
Triple P Online is a brief, eight-module, interactive self-help positive parenting programme delivered via the internet. It involves information and exercises regarding positive parenting strategies such as encouraging behaviour you like, managing misbehaviour and teaching new skills. Each module will take about 30 minutes to complete.

What does taking part involve?
Participants will be randomly allocated to either complete the online programme immediately, or in six months' time. Please note that participants are not able to choose which programme they would like to complete. During a period of 12 weeks, each participating family will have access to the online programme. During that time I will provide telephone support with two calls. These calls will take up to 15 minutes each. For the purpose of quality control, i.e. to ensure that the telephone consultations follow a predefined protocol, some of the calls may be audio recorded. These recordings will only be listened to by me, a research assistant, and my supervisors. The research assistant, a post-graduate student from the Faculty of Education or Psychology, will be required to sign a confidentiality agreement before commencing employment. Confidentiality with respect to your identity will be guaranteed.

Participation also involves the completion of some questionnaires. These questionnaires ask about a range of parenting and child behaviour issues, as well as about parents' own behaviour and well-being. So that we can assess the immediate and long-term effects of the programme, participants will be asked to complete these questionnaires online or in paper format before the programme starts, at the end of the programme, and again six months after completing the programme. At each time point the questionnaires for mothers will take approximately 50 minutes to complete and the father questionnaires will take about ten minutes to complete. Single parent households will be asked to complete the 50 minutes questionnaires. In addition we would like to ask about your experience and satisfaction with the programme within a month after you have completed it. The interview will take about 20 minutes and will be recorded and transcribed for analyses by me. We would also like to ask your child's preschool teacher to complete a short questionnaire about your child's social relationships and behaviour at each time point.

What happens to the information you provide?
All data will be used to assess the effectiveness of the online parenting programme. Names and identifying details will not be used in any summary report of this data, and all data will be described only in general terms at the group level. Each family will be assigned a code number and your name will be erased from any forms or questionnaires. Only the researchers will have access to information that matches names with code numbers. All information collected for this study will be stored in locked filing cabinets on University premises, and all electronic and web-based data will be secured by a password system. All data, including questionnaires, forms, and electronic files, will be destroyed or erased six years after publication in academic journals.

What are the possible benefits of taking part?
It is hoped that by taking part in this research, you will gain skills and knowledge that assist you with your parenting. Your participation will also provide valuable information regarding the effectiveness of the programme.

Can you change your mind?
Your participation in this study is voluntary and you are free to decline to answer questions. You have the right to withdraw yourself and any information traceable to you from the project at any time prior to the completion of data collection (30/04/2015) without penalty or giving a reason.

What will happen to the results of the study?
The results will be published in my PhD thesis, academic journals, and conference presentations. A summary of the findings will be provided to you if requested. Your name will not be used in any report.

If you are willing to participate in this study, please complete and return the enclosed consent forms in the envelope provided. Thank you very much for your time and help in making this study possible. If you have any questions or concerns about your participation in this study, please contact me on 022 380 5687 or via email at: n.franke@auckland.ac.nz.

Yours sincerely,
Nike Franke

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APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE on 21/11/2012 for 3 years. Reference: 2012/8376.

Appendix B: Consent form (Primary caregiver)

This form will be held for a period of six years.

Project title: Evaluation of an online parenting programme for parents of 3-4 year-old children

Researcher: Nike Franke

I have read the Participant Information Sheet, I have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in this research.
- I understand that participation in this research involves taking part in an online programme (eight modules of 30 minutes each) and two 15-minute telephone consultations with a Triple P practitioner (Nike Franke).
- I understand that participation in this research involves the completion of questionnaires about my child's behaviour, parenting, my behaviour and wellbeing, and my family context at the start the study, 12 weeks later, and six months following the end of the programme. The questionnaires will take about 50 minutes to complete each time (10 minutes for secondary caregivers).
- I understand that participation involves the completion of a 20-minute telephone interview about my experience with the programme and that the interview will be audiotaped for the purpose of analyses.
- I agree / do not agree (Please cross out the words that do not apply) that the head teacher/centre manager at my child's preschool/childcare centre (when applicable) can complete two questionnaires about my child's behaviour.
- I understand that names and identifying details will not be used in any summary report of this data, and all data will be described only in general terms at the group level.
- I understand that all data, including questionnaires, forms and recordings will be stored in a locked filing cabinet or on a computer on University premises to maintain confidentiality. All stored electronic data will be password protected. This consent form will be kept separate from all other forms of data, including questionnaires.
- I understand that all information I provide will be stored under the number assigned to my family rather than my name to ensure confidentiality.
- I understand that some of the telephone consultations may be audiotaped.
- I understand that all recordings will only be listened to by the researcher and a research assistant, and her supervisors.
- I understand that data from this study will be stored for the duration of the research and will be destroyed or erased six years after publication in academic journals.
- I understand that any staff employed to work on this study, including research assistants, will be required to sign a confidentiality agreement before commencing employment
- I understand that I am free to withdraw myself and any information traceable to me from the study at any time prior to completion of data collection (30/04/2015) without penalty or giving a reason.
- I wish / do not wish to receive the summary of findings. (Please cross out the words that do not apply)

Signed: _____ Date: _____/_____/_____

Name: _____

Phone number ……

Address ……..

……..

A suitable time to contact me is …….

Name of my child's preschool teacher or childcare manager …….

Name and address of my child's preschool/childcare centre……

……

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE on 21/11/2012 for 3 years. Reference: 2012/8376.

Appendix C: Consent form (Secondary Caregiver)

This consent will be held for a period of six years.

Project title**:** Evaluation of an online parenting programme for parents of 3-4 year-old children

Researcher: Nike Franke

I have read the Participant Information Sheet, I have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in this research.
- I understand that participation involves the completion of three questionnaires about child and parent behaviour at the start the study and two questionnaires about child behaviour 12 weeks later, and six months following the end of the programme. Each set of questionnaires will take about 10 minutes to complete (50 minutes for primary caregivers).
- I agree / do not agree (Please cross out the words that do not apply) that the head teacher/centre manager at my child's preschool/childcare centre (when applicable) can complete two questionnaires about my child's behaviour.
- I understand that names and identifying details will not be used in any summary report of this data, and all data will be described only in general terms at the group level.
- I understand that all data, including questionnaires, forms and recordings will be stored in a locked filing cabinet or on a computer on University premises to maintain confidentiality. All stored electronic data will be password protected. This consent form will be kept separate from all other forms of data, including questionnaires.
- I understand that all information I provide will be stored under the number assigned to my family rather than my name to ensure confidentiality.
- I understand that data from this study will be stored for the duration of the research and will be destroyed or erased six years after publication in academic journals.
- I understand that I am free to withdraw myself and any information traceable to me from the study at any time prior to completion of data collection (30/04/2015) without penalty or giving a reason.
- I wish / do not wish to receive the summary of findings. (Please cross out the words that do not apply)

Signed: _____ Date: _____/_____/_____

Name: _____

I you would like to receive a copy of the summary, please include your email or physical address here -

_____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE on 21/11/2012 for 3 years. Reference: 2012/8376.

Appendix D: Participant Information Sheet (Head Teacher/ Centre Manager)

Project title: Evaluation of an online parenting programme for parents of 3-4 year-old children

Researcher: Nike Franke

Dear Head Teacher/ Centre Manager,

My name is Nike (Nika) Franke. I am a doctoral student, with the Parenting Research Group at the Faculty of Education, University of Auckland. The Parenting Research Group conducts research looking at the effectiveness of the Triple P Positive Parenting Program. The current project is investigating the effectiveness of the online self-help version of the Triple P Positive Parenting Program. We are inviting parents of 3-4 year children, who have some concerns about their child's overactive and/or inattentive behaviour to participate in the project. I am seeking your permission to access participants through your centre for this study.

What does taking part involve?
I would like your help to advertise the study by including the project advertisement in parent newsletters, sending flyers home with children and/ or displaying the study advertisement on your parent notice board. No other involvement is required from you or your staff to recruit parents for the project. The parents interested in the research will contact me directly and will have no need to question you or your staff about the details of the study.

For parents who agree to participate in the study, and have given their permission, I would be very grateful if you can assist with the study by completing some short questionnaires about their child. The questionnaires ask about how children behave and relate to their friends and other people and will take about 15 minutes to complete. I would like you to complete the questionnaires at three time points (the second and third time points will be 12 weeks and six months after the first set of questionnaires is completed). Your help in providing this information will be extremely valuable for tracking the development of the children's behaviour and social interactions over time.

What happens to the information you provide?
All data will be used to evaluate the effectiveness of the online programme. Names and identifying details will not be used in any summary report of this data and no early childhood centres will be identified. Each family will be assigned a code number and your name will be erased from any forms or questionnaires. Only the researchers will have access to information that matches names with code numbers. All information collected for this study will be stored in locked filing cabinets on University premises, and all electronic and web-based data will be secured by a password system. All data, including questionnaires, forms, and electronic files, will be destroyed or erased six years after publication in academic journals.

What are the possible benefits of taking part?
It is hoped that by taking part in this research, your assistance will help us evaluate the effectiveness of the online parenting programme for this group of parents and their children.

Can you change your mind?
Your participation in this study is voluntary and you are free to decline to answer questions. You have the right to withdraw yourself and any information traceable to you from the project at any time prior to the completion of data collection (30/04/2015) without penalty or giving a reason.

What will happen to the results of the study?
The results will be published in my PhD thesis, academic journals, and conference presentations. A summary of the findings will be provided to you if requested. Your name will not be used in any report.

If you are willing to be involved in this study, please complete and return the enclosed consent form in the envelope provided. Thank you very much for your time and help in making this study possible. If you have any questions or concerns about your participation in this study, please contact me on 022 380 5687 or via email at: n.franke@auckland.ac.nz.

Yours sincerely,
Nike Franke

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For queries regarding ethical concerns, contact:
The Chair, the University of Auckland Human Participants Ethics Committee
The University of Auckland
Office of the Vice Chancellor
Private Bag 92019
Auckland 1142
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APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE on 21/11/2012 for 3 years. Reference: 2012/8376.

Appendix E: Consent form (Head Teacher/ Centre Manager)

This consent will be held for a period of six years

Project title: Evaluation of an online parenting programme for parents of 3-4 year-old children

Researcher: Nike Franke

I have read the Participant Information Sheet, I have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in this project.
- I understand that participation involves recruiting parents of 3-4 year old children who have some concerns about their child's overactive and/or inattentive behaviour by: placing study advertisements in newsletters to parents/ sending home flyers about study to parents/ displaying a poster about the project on the parent noticeboard in my ECE.
- I understand that for parents who agree to take part in the study, and have given their permission, my participation may involve the completion of three questionnaires about their child's behaviour at the beginning of the study, and 12 weeks and six months later. Questionnaires will take about 15 minutes to complete at each time point.
- I understand that names and identifying details will not be used in any summary report of this data, and all data will be described only in general terms at the group level.
- I understand that all data, including questionnaires and forms will be stored in a locked filing cabinet or on a computer on University premises to maintain confidentiality. All stored electronic data will be password protected. This consent form will be kept separate from all other forms of data, including questionnaires.
- I understand that data from this study will be stored for the duration of the research and will be destroyed or erased six years after publication in academic journals.
- I understand that I am free to withdraw myself and any information traceable to me from the study at any time prior to completion of data collection (30/04/2015) without penalty or giving a reason.
- I wish / do not wish to receive the summary of findings. (Please cross out the words that do not apply)

Signed: _____ Date: _____/_____/_____

Name: _____

Name ECE centre: _____

If you would like to receive a copy of the summary, please include your email or physical address here -

_____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE on 21/11/2012 for 3 years. Reference: 2012/8376.

PART 1: INFORMATION ABOUT THE STUDY

Provide information about the study and the online parenting programme. Check parent understanding throughout.

We're interested in finding our whether the online Triple P parenting programme is helpful for parents who have 3-to 4-year old children with hyperactive and/ or inattentive behaviour difficulties. First I will briefly tell you about what's involved to take part in this study.

The programme will take up to 30 minutes per week during a period of eight weeks. It includes information for you to read, exercises to complete and skills and strategies for you to practice. (The programme aims to help parents improve their skills for developing good relationships with their child, promoting positive behaviour in children and strategies for dealing with problem behaviours). Part of the programme is two telephone consultations of maximum 30 minutes each, in which we'll discuss your experience with the programme and how to tailor it to your family's needs.

Besides the 30 minutes per week and the two telephone sessions, you will need to spend around 50 minutes completing a survey about a range of parenting and child behaviour issues (also about parents' own behaviour and well-being). This is necessary to be able to determine if the programme is helpful for you. The survey will take place at three different time points. If you have a partner, he or she won't need to complete the programme but we will ask him or her to complete a shorter survey of approximately 15 minutes, also at three different time points. (Before you start the programme, after you finished the programme and then 6 months later)

There will be two groups of participants: one that starts straight after filling out the first set of questionnaires and one that will start with the programme at a later stage, six months after the other group has finished the programme. Unfortunately, due to research requirements, you will not be able to choose which group you would like to be allocated to. You'll be notified about whether you have been allocated to the start-now group or the start-later group once you have completed the first set of questionnaires.

Other things that you need to be aware of are that the telephone consultations may be recorded. These recordings are only made for the purpose of ensuring that the Triple P practitioner has delivered the consultation according to research guidelines. Your conversation will not be evaluated in any way.

There is no charge for parents who participate in the project. All information you provide is strictly confidential and accessed only by research staff. If you wish, you can withdraw from the project at any time.

Do you have any questions so far?

Are you interested in participating in the program? YES NO

Reason if 'no'_____

That's great! What I need to do now is ask you some questions to determine if the programme will meet your needs and that your family is eligible to participate. Is that ok? If you aren't eligible for this program, but feel you would like some assistance with your child or with parenting, I can give you some details for services that might be able to help.

PART 2: DETERMINE ELIGIBILITY

How did you learn about our project?

(please circle one)

Radio, Newspaper, Flyer or newsletter from childcare, kindergarten, or preschool centre, Flyer or newsletter from preschool, Other

How old is your child? _____

→ *EXCLUDE IF NOT 3-4 YEARS*

Do you have broadband internet access on your computer at home or at some other place that is easy to get to? YES NO

→ *EXCLUDE IF DON'T HAVE ACCESS*

Does your child have a developmental or intellectual disability? YES NO

→ *EXCLUDE IF CHILD HAS DISABILITY*

Is your child receiving any treatment including medication, from a counsellor, psychologist or psychiatrist for behaviour problems? YES NO

Are you currently receiving any assistance for your child's behaviour or emotional adjustment?

YES NO

Are you currently receiving any assistance for your own psychological or emotional problems?

YES NO

→ *EXCLUDE IF CHILD or PARENT RECEIVING TREATMENT*

Are there any major commitments or disruptions in your family in the next 3 or 4 months that may make it difficult for you to complete the program?

YES NO

→ *EXCLUDE IF YES*

To participate in the study, there is some reading involved. However, we have designed the programme so that it is around the same level as reading a newspaper.

Do you think you'll have any difficulties with that? YES NO

→ *EXCLUDE IF YES*

I'm afraid that our project isn't suitable for your family's needs right now. However, we really appreciate your interest and your time today. Would you like some contact details of alternative sources of support for you and your child?

The good thing about the internet Triple P is that it can be completed in your own home at your own pace. However, we know from previous research, that the programme is most effective if we set a limit on the time it takes parents to complete it. So, you need to know that we'll be asking parents to have it finished within 14 weeks.

Appendix G: Werry-Weiss-Peters activity rating scale

Here's a list of questions about your child. To each question there are four possible answers:

No if your child does not do this behaviour or almost never;

Some if he or she does it some of the time;

Much if he or she does it quite a bit;

and **Not Applicable** if it doesn't apply to your child.

Child's Name Date: Parent's Name

1. During meals, is your child up and down at the table?

   No Some Much NA

2. During meals, does your child interrupt others without regard for what they are trying to say?

   No Some Much NA

3. During meals, does your child fiddle with things?

   No Some Much NA

4. During meals, does your child wriggle?

   No Some Much NA

5. During meals, does your child talk too much?

   No Some Much NA

6. When watching television, does your child get up and down during the program?

   No Some Much NA

7. When watching television, does your child wriggle?

   No Some Much NA

8. When watching television, does your child play with objects or his/her own body?

   No Some Much NA

9. When watching television, does your child talk too much?

   No Some Much NA

10. When watching television, does your child do things which interrupt others' ability to watch the program?

    No Some Much NA

11. Is your child unable to play quietly?

No Some Much NA

12. When at play, does your child keep going from one toy to another?

No Some Much NA

13. When at play, does your child seek the attention of an adult?

No Some Much NA

14. When at play, does your child talk too much?

No Some Much NA

15. When at play, does your child disrupt the play of other children?

No Some Much NA

16. Does your child have difficulty settling down to sleep?

No Some Much NA

17. Does your child get too little sleep?

No Some Much NA

18. Is your child restless during sleep?

No Some Much NA

19. Is your child restless during travel?

No Some Much NA

20. Is your child restless during shopping (including touching everything)?

No Some Much NA

21. Is your child restless during church/ temple or at the movies?

No Some Much NA

22. Is your child restless while visiting relatives?

No Some Much NA

Appendix H: Example questions form the PACS interview

ACTIVITY LEVEL

* Now I'd like to ask about some of the things ..... enjoys doing.

* Has he watched television this week?

* When was the last time you saw him doing this?

* Was it a programme he enjoys watching, if so how long did he watch for?

More than 30 minutes	- 0
More than 15 mins, but less than 30 mins.	- 1
From 6 to 15 mins.	- 2
No more than 5 mins	- 3
Activity has not occurred (NA)	- 8

* What would be the typical time for a programme he enjoyed?

Usual
(same rating)

* That particular time he was watching a television programme, was he up and down and out of his seat at all?

* How many times during that particular period?

Not at all	- 0
About once every 15 mins.	- 1
More than x1 per 15 mins. but less than x1 per 5 mins	- 2
At a rate of x1 per 5 mins. or more	- 3
Period less than 15 mins. - no moves	- 6
Period less than 5 mins. - no moves	- 7
Activity not occurred	- 8

* What would his typical rate of getting up and down out of his seat during a programme he enjoys watching?

* That particular time of watching a television programme you described, was he fidgeting about at all?

* How much?

Not at all	- 0
Less than half the time	- 1
More than half the time, but not throughout	- 2
Continuous, never stopped	- 3
Activity not occurred	- 8

* What would be his typical pattern when watching a television programme he enjoys?

Appendix I: Closure screening interview

PART 5 screening interview

SUMMARY & NEXT STEPS

IF PARENT WAS EXCLUDED AT ANY POINT SAY:

I'm afraid that our project isn't suitable for your family's needs right now. However, we really appreciate your interest and your time today. Would you like some contact details of alternative sources of support for you and your child?

IF YES, **say**: *The best person to contact if you are experiencing problems with the behaviour of your child is your family doctor. So, I would recommend talking to him or her about that in the first instance. However, there are also a couple of other options that I can give you numbers for, if you're interested. I can email these numbers to you if you prefer.*

Provide phone number of the **PlunketLine (0800 933 922)** → if outside Auckland.

You can also tell them about **TPNZ centre in Ellerslie (579 1794)** and the **UoA Psychology Clinic at Tamaki (373 7559 ext. 86535).**

Also mention that there will be other research projects in the future and we can register their details in our database to be contacted if something arises that look suitable for their needs.

IF PARENT IS ELIGIBLE FOR THE STUDY SAY:

Okay, based on those questions, it does seem like the programme will be useful for your family's needs, so we'd love to have you involved! I'd like to now get some names and contact information from you to complete the registration for the project, and then I'll explain what happens next.

COMPLETE FAMILY CONTACT SHEET.

Once Family Contact Sheet is completed, say:

Thank you for all of that information. The last thing we need to do today is explain what happens next. I am going to send you a letter with an information sheet about this study, a consent form and the first set of questionnaires. I would like to ask you to complete this forms and send them back to me. It is important for my research that you send the forms and questionnaires back to me quickly, preferably within two weeks. I will also send you a link to an online survey.

Once we have received your questionnaires and forms, I will contact you again to tell you whether you have been allocated to be in the start-now- group or the start-later- group.

Okay, that's everything for today! Thank you very much for all of that information, and for your patience with all of my questions.

Before we finish, do you have any other questions about the study?

Answer any questions that the participant has, and be willing to go over any aspect of the study again. Finally, thank the parent for their time and for their interest in the study and remind them that they should receive the questionnaires in the post in the next few days or receive an email with the link to the online questionnaire.

TPOL inattention/ overactivity
Family Contact Sheet

Try to obtain as much contact information as possible during screening.

CHILD
Name: _____ DOB: _____/_____/_____

Gender: Male / Female

Partner status: two-parent household / one-parent household.

CALLER
Name: _____ DOB: _____/_____/____ or AGE:_____

Address:_____

Ph: (H) _____ Ph: (Mob) _____

Ph: (W) _____ Email address: _____

Relationship to child: _____

PARTNER
Name: _____ DOB: _____/_____/____ or AGE: _____

Address:_____
(if different to above; if not, just write 'as above')

Ph: (H) _____ Ph: (Mob) _____

Ph: (W) _____ Email address: _____

Relationship to child: _____

ALTERNATE CONTACT
Just in case we have trouble getting in contact with you, especially when it comes to the 6-month follow up, would you mind giving us the name & contact details of someone who should be able to help us reach you (e.g., non-residential family member, neighbour, GP)?

Name: _____
Ph: (H) _____ Ph: (Mob) _____
Ph: (W) _____ Email address: _____

When are the best times to get in contact with you? _____

Are there any really bad times to contact you? _____

Appendix J: Phone sessions 1 and 2

TPOL – phone session 1 CHECKLIST

Use this guide as record of what was covered in session 1. Indicate with a tick if the item was covered. Leave blank if the item was omitted.

Parent ID:		Parent name:		Child name:	
Start time:		Finish time:		Length call:	
Session date:		Last TPOL module completed by the parent:			

Process issues (tick all that apply)

☐ Parent not started TPOL (indicate reason):
- ☐ Technical difficulties
- ☐ Forgot
- ☐ Too busy/ did not get around to it

☐ Parent unprepared/ forgot about appointment (e.g. driving, out at shops)

☐ Tick here to indicate a missed session, reason:
- ☐ Cancelled at parent's request due to reasons above
- ☐ Parent did not answer/ unable to be contacted
- ☐ Parent away (e.g. on holidays)
- ☐ Too many reschedule requests from parent
- ☐ Parent cancelled due to conflicting schedule
- ☐ Other: _____

Session 1 checklist

☐ Review module progress (has parent completed first module?): _____

☐ Ask parent to set agenda
Is there anything in particular you'd like to discuss today?
(Parent's main concerns/ goals during programme, behaviours they'd like to see changed/ any other specific issues)

_____

_____

☐ Review module content

Can you identify one or two most important ideas from the last module?

_____

_____

☐ Review goals/ practice tasks

What were the practice tasks you set yourself for this week?

(Refer to Get active component of the module, use minimal prompting to help parent identify or refine goals if necessary)

_____

_____

_____

☐ Review progress of tasks/ goals

- *How have you gone with these tasks/ goals so far? What has been working well?*

_____
_____
_____

- *What could you have done differently?*

_____
_____
_____

☐ Discuss any other agenda items
(Use minimal prompts to help parent solve any problems)

_____
_____
_____

☐ **[If necessary]** Discuss adherence plan
(Prompt parent to plan time to access the programme during the coming week)

_____

☐ Review and summarize session

- *What are your goals/ practice tasks for the coming week?*

_____
_____
_____

- *Is there any module content that you feel you need to review?*

_____
_____

☐ Wrap up and confirm next appointment

Date: _____ Time: _____

Reminder email? Yes/ no When? _____

TPOL – phone session 2 CHECKLIST

Use this guide as record of what was covered in session 2. Indicate with a tick if the item was covered. Leave blank if the item was omitted.

Parent ID:		Parent name:		Child name:	
Start time:		Finish time:		Length call:	
Session date:		Last TPOL module completed by the parent:			

Process issues (tick all that apply)

☐ Parent not started TPOL (indicate reason):
- ☐ Technical difficulties
- ☐ Forgot
- ☐ Too busy/ did not get around to it

☐ Parent unprepared/ forgot about appointment (e.g. driving, out at shops)

☐ Tick here to indicate a missed session, reason:
- ☐ Cancelled at parent's request due to reasons above
- ☐ Parent did not answer/ unable to be contacted
- ☐ Parent away (e.g. on holidays)
- ☐ Too many reschedule requests from parent
- ☐ Parent cancelled due to conflicting schedule
- ☐ Other: _____

Session 2 checklist

☐ Review module progress: _____

☐ Ask parent to set agenda
Is there anything in particular you'd like to discuss today?
(Parent's issues of (one of) the previous modules)

_____
_____
_____
_____

☐ Check parent's progress re goals (see phone session 1): *How are things going with the main goals you'd like to reach with the programme (repeat the goals)*

_____
_____
_____

☐ Review module content
Can you identify one or two most important ideas from the last module?

_____
_____
_____

☐ Review goals/ practice tasks

What were the practice tasks you set yourself for this week? (Refer to Get active component of the module, use minimal prompting to help parent identify or refine goals if necessary)

_____
_____
_____

☐ Review progress of tasks/ goals

- *How have you gone with these tasks/ goals so far? What has been working well?*

_____
_____
_____

- *What could you have done differently?*

_____
_____
_____

☐ Discuss any other agenda items
(Use minimal prompts to help parent solve any problems)

_____
_____
_____

☐ **[If necessary]** Discuss adherence plan (Prompt parent to plan time to access the programme during the coming week)

_____

☐ Review and summarize session

- *What are your goals/ practice tasks for the coming week?*

_____
_____
_____

- *Is there any module content that you feel you need to review?*

_____
_____

☐ Wrap up and tell what happens next (finish the programme, reminder downloadable resources, another two sets of questionnaires)

Date:

Duration:

Programme Satisfaction Interview questions

This is Nike speaking from the Parenting Research Group at the University of Auckland. May I please speak with….? I'm calling in regards to the Online Triple P study. Thank you for agreeing to participate in the interview. Today's call will take up to 20 minutes, is now still a good time for you?

I'd like to find out a bit more about your experiences with the online Triple P programme.

1. Why did you choose to take part in the project?
2. a. What did you expect of the programme?
   b. Did the programme live up to your expectations?
      If no, can you tell me why the programme did not meet your expectations?

Possible prompts: programme content; programme design; did not meet parent's needs

3. a. How helpful was the programme in helping you manage your child's behaviour?
   b. Which parenting strategies did you find helpful?
   c. Are you still using those skills?
      If no, why not?
   d. What changes have your observed in your child's behaviour since participating in the programme?

4. Have there been other benefits of the programme for you (apart from helping to manage your child's behaviour)?
   - What have been the benefits of the programme for your child?

5. Do you feel you need more help with your child's behaviour at this time? If yes, which aspects of your child's behaviour?

6. a. Were there any barriers for you in using the programme?
   Prompts for possible barriers:
   - *yourself*
   - *family (e.g. partner)*
   - *child*

   b. Were there any barriers for you in using the strategies you learnt in the programme?
   Prompts for possible barriers:
   - *yourself*
   - *family (e.g. partner)*
   - *child*

7. Are there any other comments about the programme you would like to add?