DOCTOR OF PHILOSOPHY

Self-help parent training for childhood ADHD symptons

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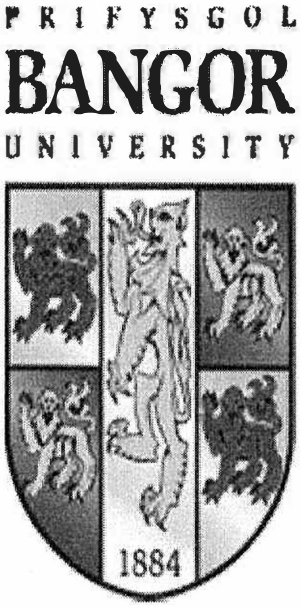

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"Give me a child and I'll shape him into anything."

- B. F. Skinner (1904 – 1990)

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Reflective Commentary

As an ESRC CASE award studentship, there was already a relatively firm plan of the PhD project already in place—a randomised controlled trial evaluating a self-help parent-training programme for children with ADHD. My post at the time was as an Assistant Psychologist at the local Child and Adolescent Mental Health Service, and as part of my role I was fortunate enough to co-lead the Incredible Years (IY) Parent Training programme. I was also working on the North Wales Sure Start Trial evaluating the IY programme as a preventative intervention with a community sample of preschool children identified as being at risk of developing conduct problems. So, what was eventually to become my PhD appealed to me instantly. It was the right mix of research and clinical. I had often thought about doing a PhD but had imagined them to be rather dry and uninteresting, focused upon answering "academic" questions. There wasn't enough 'real life' in it for me. What appealed to me about my PhD was exactly this—it was 'real life'. I really enjoy listening and talking to families and hearing their stories. Thankfully, I was given the opportunity to study for the PhD.

The world of ethical approval was not too painful an experience, mainly due to Dave, my supervisor, who is very experienced in this area. Recruiting participants however proved to be rather more difficult. The rural and vast nature of North Wales meant that visiting three families sometimes took all day. I travelled from the costal north of the county (i.e. Bangor, Rhyl, and Llandudno) to the south of the county (i.e. Barmouth) and everywhere in between, plus to the borders including Wrexham, and Broughton! I must admit, on those long journeys (worse during the winter months), the prospect of conducting the follow-up visit was not a particularly welcome one, especially working as a 'one-man band'! Nevertheless, we managed to recruit 43 families, some of who dropped out prior to follow-up, which is an inevitable fixture of clinical research. I

must admit I was little envious of my PhD colleagues who were part of a large and well-established research team evaluating another parenting programme.

Because the study utilised randomised controlled trial methodology (self-help vs. control group), and I had to remain blind to participant status, I had to effectively be shielded from my own data. At times, this felt a little bit strange and it was difficult 'sitting' with the feeling that (obviously in the interest of the project) I didn't really know what was going on. Upon reflection, perhaps utilising randomised controlled methodology wasn't the best option for a PhD project, which only had the support of two researchers. From experience, I feel that a team of researchers is perhaps a better option when implementing this type of methodology. Nevertheless, we got there in the end and I felt a little sad when I realised that the recruitment phase had come to an end and I would never visit another family as a PhD student.

The third study that was planned for the PhD was another randomised controlled trial, which sought to evaluate the efficacy of self-help alone compared with self-help plus medication for children with ADHD. Unfortunately, recruitment for this study was significantly worse than that experienced for the first study. There was confusion over the study entry criteria, and many of the potential participants were teenagers, and therefore not within the remit of the planned study. Also, prolonged periods of medical staff sickness prevented the children from starting medication, which meant that following baseline assessment, the children had not received their medication, making evaluation of self-help plus medication impossible. Dave and myself continued to do our best to recruit, but unfortunately, it became clear that the third study would not get off the ground. This catastrophe, or so it seemed at the time, incidentally coincided with my writing the review paper on the evidence-base supporting self-help parenting programmes for children with behaviour problems. It struck me that we had not included a measure of

'consumer satisfaction' in our study to assess parents' views on the acceptability of self-help, and the majority of previous trials had only asked parents very general questions relating to their satisfaction with self-help. It is all well and good showing that an intervention works to improve child and parent outcomes, but what if parents don't really 'like' the intervention or find it laborious or too difficult to implement? Self-help is a rather challenging mode of delivery in that it requires parents to engage with and implement the material without therapist input and support. Having co-lead IY parent programmes, I was aware of the support parents drew from each other during group sessions, something that was also clearly absent in self-help. What were parents' views on this? Were there any factors that got in the way of parents' efforts to implement self-help intervention? In order to try and answer these questions, it was decided to conduct in-depth interviews with a small sample of parents who had just completed the self-help programme. As we were nearing the end of recruitment for the first study, it was implausible to add a questionnaire-based measure assessing parental acceptability of self-help, and also, we wanted to get a real sense of what parents had to tell us about self-help. To our knowledge, a qualitative study had not been conducted before.

I thoroughly enjoyed conducting the interviews with the mothers who were kind enough to give up their Saturday mornings and Christmas holidays to tell me what they thought about the self-help programme. What was certainly less enjoyable was the transcribing, and it took approximately seven hours to transcribe one interview. I was offered the opportunity for someone else to transcribe my interviews on my behalf. I declined. I reasoned that if I spent the time transcribing, it would allow me to become much more familiar with my data. My reasoning wasn't far wrong. However, what was more difficult was grappling with qualitative analysis. I felt out of my depth and slightly fraudulent. Thankfully, Jaci Huws—a qualitative genius—agreed to help me out, and

somehow, I (think!) I managed to create a piece of work that made sense, and more importantly, remained a true account of what the mothers themselves had experienced.

One of the recurring thoughts I had during my PhD was 'where does self-help PT fit-in?' As I mentioned earlier, I had experience of co-leading IY groups and so was aware of the intensive input parents received whilst completing the programme—two and a half hour sessions per week for 12 weeks, weekly telephone calls, sometimes home visits, group support and friendship from the other parents, and anything else in between! During my home visits to conduct the observation assessment sessions with parents, I often left feeling rather gloomy and helpless. Many of the families I visited were living in chaotic environments, characterised by difficult relationships with their children. I wondered…'how on earth are these parents going to follow, let alone implement a self-help programme?' *Self-help?* I often thought on the long drive home down the A55, 'what these parents really need is input from an experienced therapist'. Definitely not self-help! I had long conversations with my partner, Jim— 'what if my PhD doesn't 'work'?'—to which he would calmly remind me that research isn't necessarily about things 'working', especially not in the way you think they ought to. Nonetheless, the results from Study One are particularly positive, showing improvements in child ADHD symptoms and parenting competence. And as previous research will tell me, self-help is certainly better than no intervention at all. Actually, in retrospect, I think I perhaps underestimated the value of self-help and the motivation parents had to implement such an intervention.

Surprisingly, one of the unanticipated 'side effects ' of my PhD is that it has forced me to become rather more politically aware. Why self-help? Surely there are enough evidence-based, therapist-led parenting programmes, with enough trained therapists to run them regularly, who have access to consistent supervision by

experienced therapists? In short, the answer was 'no'. Why not? Rather naively, I had supposed that government money grew on evergreen money trees. So, I began to see where my PhD research fitted-in and its clinical implications. The lack of access to services is especially prominent in a rural area like North Wales. One of the families I visited lived approximately 50 miles away from their local CAMHS clinic. Needless to say, I had to book-in a whole day when I went to visit this particular family!

Writing my PhD thesis has been a strange sort of experience—both positive and negative. I am still plagued with feelings of the well-documented 'imposter phenomenon', and this can sometimes lead to bouts of procrastination and perfectionism, both of which get in the way of productive writing. Perhaps importantly, I have learnt that things do not need to be perfect (and my writing speed has become faster as a consequence!). Surprisingly for me, I very much enjoy academic writing. It is a very methodical and formulaic style of writing, and I like this. There have been times if I am completely honest, where I have found my PhD challenging. The constant feeling of life being on hold and trying to convince myself that it will be over soon; promising that I will catch-up with everyone who I have neglected over the past 12 months, if not longer. However, writing this thesis has reminded me of how privileged I have been to be able to undertake such a piece of work. I am incredibly thankful to Dave— who gave me the chance to study for a PhD and who thought I was capable of it in the first place.

Doing a PhD is not for the faint-hearted. Without wanting to sound too dramatic, it is an exhausting, long-winded, intellectually draining experience. However, on the flip side, it is a huge achievement, and I feel proud that I have managed to see it through to the best of my ability. Most of all, I am pleased that I have contributed, albeit in a small way, to the research literature on parenting and ADHD.

Summary of PhD

Parent training (PT) interventions have demonstrated effectiveness in reducing child ADHD symptoms over the short (Jones, Daley, Hutchings, Bywater, & Eames, 2007; Sonuga-Barke, Daley, Thompson, Laver-Bradbury, & Weeks, 2001; Thompson et al. 2009) and longer-term (Bor, Sanders, & Markie-Dadds 2002; Jones, Daley, Hutchings, Bywater, & Eames, 2008). Despite the efficacy and availability of PT programmes, the prevalence of ADHD creates a need that exceeds available personnel and resources (Foster, Johnson-Shelton, & Taylor, 2007). Furthermore, delivering PT as part of routine clinical services is likely to have significant cost implications due to therapist training and on-going supervision (Foster et al, 2007). Additionally, parents may experience multiple barriers when participating in PT, such as work schedules, lack of childcare provision, and logistical difficulties associated with attending clinics at inconvenient times, leading to high levels of non-engagement or non-completion of PT. Self-help PT has been proposed as an alternative delivery format in order to increase access to PT in this population, whilst removing barriers to participation.

Evidence supports the efficacy of self-help intervention for childhood behaviour problems either as a stand-alone intervention, or in combination with therapist support via the telephone (Morawska & Sanders, 2006), or media support (Sanders et al, 2008). A recent Cochrane review (Montgomery, Bjornstad & Dennis, 2006) also concluded that self-help interventions for childhood behaviour problems were worth considering in clinical practice. The challenge

ahead will be to translate current efficacious therapist-led interventions for ADHD into effective self-help formats. This is the primary objective of the current thesis.

Following a general introduction to childhood ADHD (*Chapter 1*), a literature review of self-help parent training interventions for childhood behaviour problems is presented (*Chapter 2*). Overall, the review concludes that there is good evidence supporting the efficacy of self-help PT in improving child behaviour, over both the short- and long-term. The future directions of self-help PT are also discussed.

Study one (*Chapter 3*) presents the results from a small-scale randomised controlled trial evaluating the efficacy of the New Forest Self-Help Parent Training programme (NFPP-SH) with a clinically referred sample of children with ADHD symptoms. Recent clinical trials evaluating the individual therapist-led version of The New Forest Parent Training (NFPP) programme for children with ADHD reported positive results in terms of child ADHD (Sonuga-Barke et al, 2001; Thompson et al, 2009) and maternal well being (Sonuga-Barke et al, 2001). Results from the current trial show that entirely self-administered NFPP-SH led to significant, clinically meaningful changes in child ADHD symptoms, and parenting self-esteem. Given the lack of research in the area of self-help interventions, particularly for clinical populations, the results of this study provide a significant contribution to the literature, and to our knowledge, is the first controlled trial to evaluate the self-help NFPP with a clinical sample.

The second study (*Chapter 4*) is a qualitative study that sought to explore parents' perceptions of the acceptability of self-help as mode of intervention delivery, and perceived barriers to implementing self-help intervention. In-depth interviews were conducted with five mothers who had recently completed the NFPP-SH and were analyzed using a grounded theory approach. Significant challenges and barriers to implementing self-help PT were uncovered, as were the advantages of receiving parenting information via this mode of intervention delivery. This study provides an insight into parents' perceptions of the acceptability of self-help PT, and as such provides a valuable contribution to the literature. Previous studies have reported lower levels of parent satisfaction following self-help PT compared with programmes that include some form of therapist support (Sanders et al, 2000). However, it remained unclear which specific factors associated with self-help PT parents viewed as less acceptable. The current study has gone some way to elucidating parents' perceptions of the acceptability of self-help PT, and by taking these into consideration, therapist-led treatments that are already empirically supported, such as NFPP, may be more likely to be used by parents when presented in self-help format.

The third study (*Chapter 5*) explored potential predictors of PT outcome in children who had completed the NFPP-SH intervention. Predictors examined were severity of child ADHD symptoms, parental ADHD symptoms, parental depression, parenting self-esteem, and number of children in the family. Two significant predictors of self-help PT outcome emerged. First, children with more severe pre-treatment ADHD symptoms made fewer treatment-related gains

following self-help intervention. Second, analysis also revealed a significant effect for parenting symptoms of depression in predicting intervention outcome, whereby parents with higher levels of depressive symptomatology had children with more severe ADHD symptoms following intervention.

An overview of the main findings presented in the thesis, as well as clinical implications and suggestions for future research are discussed in the final chapter (*Chapter 6*).

The findings suggest that NFPP-SH is an efficacious treatment for a clinical sample of children with ADHD symptoms. Parents with high levels of depressive symptomatology, as well as children with more severe levels of ADHD symptoms may not benefit as much from self-help PT. Additionally, the results from the qualitative study suggest that self-help PT is more likely to be viewed as acceptable when minimal levels of therapist input is included. Overall, the results suggest that self-help PT is potentially useful clinically.

CHAPTER 1

An Introduction to Childhood Attention Deficit Hyperactivity Disorder

Overview of Chapter

This chapter provides an overview of childhood ADHD (3-12 years), including information regarding classification, prevalence, developmental course, and co-morbidity. The chapter contains a discussion of neuropsychological models of ADHD, as well as current research on the genetics of ADHD. Research on gene-environment interactions in ADHD is then presented. The role of parenting in the disorder is discussed, with emphasis on parenting style and parental cognitions, as well as the effects of parental ADHD upon parenting. Interventions for childhood ADHD are briefly presented, and the evidence-base supporting parent-training interventions in the treatment of childhood ADHD is discussed. Three parenting interventions—the Incredible Years Parenting Programme, the Triple-P Positive Parenting Programme, and the New Forest Parent Training Programme—are introduced and findings supporting their efficacy in the treatment of childhood ADHD are presented. The chapter ends with a discussion of the limitations of traditional, individual- and group-based therapist-led parenting interventions, including barriers to participation. Self-help parent training programmes are briefly introduced, and put forward as a potentially efficacious means of increasing access to evidence-based parenting programmes for families of children with behavioural disorders.

Attention Deficit Hyperactivity Disorder

Attention deficit hyperactivity disorder (ADHD) is typically diagnosed when children reach middle childhood (around 8 years of age) and is characterized by a

consistent pattern of core symptoms including inattention, impulsivity and over-activity (American Psychiatric Association, 1994, 2000). In order to receive a diagnosis of ADHD, symptoms must a) be present in two or more settings (e.g. school and home), b) be inconsistent with the child's developmental level, and c) cause significant impairment in social and/or academic functioning. The current Diagnostic and Statistical Manual of Mental Health Disorders (4th ed: DSM-IV, 2000) identify three sub-types of ADHD: predominantly inattentive, predominantly hyperactive-impulsive, and combined.

Epidemiological studies indicate that ADHD is a prevalent disorder. In a UK survey of 10,438 children aged between 5 and 15 years, it was reported that 3.62% of boys and 0.85% of girls had ADHD (Ford, Goodman, & Meltzer, 2003), with an overall prevalence rate of 2.23%. Prevalence estimates vary widely according to geographical location, with the USA reporting a significantly higher rate than Europe (Timimi, Taylor, Cannon, McKenzie, & Sims, 2004). A recent systematic review of worldwide prevalence studies of childhood ADHD reported a rate of around 5.3%, stating that a large amount of the variability in worldwide prevalence derived from methodological differences used to assess ADHD (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007).

Developmental Course of ADHD

If left untreated, the prognosis for ADHD is poor. In childhood and adolescence, it is associated with educational failure (Wolraich et al., 2003) and impairments in social functioning (Biederman, Farone, & Milberg, 1996), and in adulthood with

substance abuse (Gudjonsson, Sigurdsson, Young, Newton, & Peersen, 2009), criminal behaviour (Pratt, Cullen, Blevins, Daigle, & Unnever, 2002), and occupational disadvantage (Young, Toone, & Tyson, 2003). It is clear that ADHD is associated with significant cost to health, social, and education services in England and Wales. Recent estimates place that cost at £23 million for initial specialist assessment and £14 million annually for follow-up care, excluding medication costs (NICE 2009), with subsequent costs to the judicial, and welfare system if ADHD persists into adulthood.

ADHD is increasingly diagnosed in the preschool years, with symptoms and impairment emerging as early as ages 2 and 3 (Campbell & Ewing, 1990; Egger, Kondo, & Angold, 2006). In the United States, psychotropic prescription trends indicate that use of stimulant medication to treat ADHD in preschoolers has been rising, with up to threefold increases in children ages 2-4 years (Zito et al. 2000), despite insufficient information on the safety and efficacy of these medications in preschoolers (Greenhill et al. 2006). Given the increasing rates of diagnosis and subsequent treatment with psychostimulant medication in this young age group, research has sought to examine the validity of ADHD in the preschool period (Egger et al, 2006). Findings show that preschoolers share similar symptom structure (Daley & Thompson, 2007), experience similar impairment, co-morbidity, and neuropsychological deficits (Sonuga-Barke, Dalen & Remmington, 2003) as school-age children with the disorder. These findings provide some evidence to support the validity of preschool ADHD (Sonuga-Barke, Auerbach, Campbell, Daley, & Thompson, 2005). The long-term stability

of preschool ADHD is less certain with some longitudinal studies suggesting that early symptoms of ADHD are stable in only a proportion of cases (Lahey et al. 1998), whilst other studies provide evidence for the diagnostic continuity of pre-school ADHD (Lahey et al. 2004).

The inconsistencies surrounding the long-term stability of preschool ADHD likely reflect a high degree of clinical heterogeneity in preschoolers with the disorder (Sonuga-Barke et al, 2005), with additional factors, such as co-morbidity and severity of symptoms likely to affect the developmental trajectory and persistence of the disorder into middle and late childhood (Sonuga-Barke et al, 2005).

As ADHD continues into middle childhood, the persistent pattern of inattention, hyperactivity, and impulsiveness becomes associated with clinically meaningful impairments in the child's functioning. These impairments typically affect educational achievement and the development of social skills (Biederman et al. 2004). For example, Biederman and colleagues (Biederman et al. 2004) reported that school-age children with ADHD who also reported deficits in executive functioning (defined as showing impairment on at least two executive function measures) were more than twice as likely to repeat a grade and report poorer overall academic achievement, even after controlling for IQ. Other deficits in adaptive functioning include socialization with peers. Children with ADHD are often intrusive in social interactions (Flicek, 1992), and tend to be more hostile, commanding, and forceful than their peers, which can result in rejection by other children (Barkley, 2002). A recent study by Hoza and colleagues (Hoza et al.,

2005) reported that school-age children with ADHD were impaired across multiple aspects of peer functioning, relative to comparison peers and the pattern of negative peer status was already established by the age of 7 years. This study is particularly robust as it used same-sex classmates to rate peer functioning and status in children with ADHD, as opposed to adult-informant methods, which have shown only moderate correlation with peer report.

Prospective research studies have shown that a number of children diagnosed with ADHD in childhood continue to reach diagnostic threshold for the disorder during adolescence. Biederman and colleagues (Biederman, Mick, & Faraone, 2000) reported findings from a longitudinal study of ADHD boys which showed that at age 19, 38% of children had the full ADHD diagnosis, 72% showed persistence of at least one-third of the symptoms required for the diagnosis, and 90% showed evidence of clinically significant impairment. Further evidence for the diagnostic continuity of ADHD into adolescence was reported by Biederman and colleagues (Biederman et al., 1998), who examined differences in the clinical expression and correlates of ADHD in children (mean age 9 years) and adolescents (mean age 14 years). Results showed a highly similar pattern of correlates between both age groups across multiple domains, including number of ADHD symptoms, cognitive, social, and school functioning, and psychiatric co-morbidity (conduct, anxiety and mood disorders).

In adulthood, around 60% of patients diagnosed with ADHD during childhood report clinically significant impairments in social relationships, mental health, and occupational functioning (Faraone et al. 2000). Moreover,

commensurate with childhood ADHD, adults with the disorder show similar patterns of neuropsychological deficits across multiple domains of functioning. A meta-analytic review synthesizing the research on neuropsychological deficits in adults with ADHD revealed impairments in attention, behavioural inhibition, and memory (Hervey, Epstein, & Curry, 2004), although it should be noted that the majority of the studies included in the review did not control for certain confounding variables reported to predict performance on neuropsychological tests, such as education, IQ, co-morbidity, and to a lesser extent treatment history (Faraone et al. 2000).

Co-morbidity and ADHD

Children with ADHD often show a characteristic pattern of psychiatric co-morbidity. Reports of co-morbidity in ADHD include both community and clinic samples (Caron & Rutter, 1991). The most commonly reported co-morbidity is conduct problems [including oppositional defiant disorder (ODD) and conduct disorder (CD)], and it has been estimated 30-70% of children diagnosed with ADHD also meet diagnostic criteria for conduct problems (Biederman, Newcorn, & Sprich, 1991). A recent study examining concurrent co-morbidity in a referred sample of 342 Caucasian children with ADHD, reported that the most prevalent diagnoses co-occurring with ADHD were ODD (41%), minor depression/dysthymia (22%), and generalized anxiety disorder (15%; Elia, Ambrosini, & Berrettini, 2008). Other disorders frequently observed in children with ADHD are dyslexia (25-40%), motor co-ordination problems (50%), sleep disorders (25-50%), and enuresis and/or encopresis (30%; Bhatia, Nigam, Bohra,

& Malik, 1991; Willcutt, Doyle, Nigg, Farone, & Pennington, 2005).

Given that co-morbidity is the rule rather than the exception in children with ADHD, a number of studies have examined the implications of concurrent co-morbidity for the prognosis and treatment of ADHD. Results generally converge on the finding that children with co-morbidities experience greater symptom severity and persistence (Biederman et al., 2007), more negative correlates and sequelae (Capaldi, 1992), poorer neuropsychological functioning (Jensen, Martin, & Cantwell, 1997), greater social dysfunction (Biederman et al, 2007), and a more intractable course than children with ADHD alone (Barkley, 2002). Further research has revealed significant associations between adolescents with ADHD and co-morbidity and family characteristics, including higher levels of parental depression, anxiety, and social adversity when compared with parents of children with ADHD alone (Hurtig et al., 2007).

The impact of co-morbidity on treatment outcome has also been examined. In the largest treatment study to date, the American Multimodal Treatment study of Children with ADHD (MTA, Jensen et al. 2001), children with ADHD and co-morbid internalizing disorders showed a distinct response to treatment. Those with ADHD and co-morbid anxiety tended to be more treatment responsive (i.e. responded equally well to behavioural and medication treatments) than those with ADHD alone or with co-morbid ODD/CD (showed a superior response to medication; Jensen et al., 2001). This finding was corroborated by a study that reported a significantly greater reduction in ADHD symptoms after medication treatment in children with ADHD and co-morbid anxiety compared to

those with ADHD only (Goez, Back-Bennet, & Zelnik, 2007). Conversely, Garcia and colleagues (Garcia et al., 2009) did not identify significant differences in the response to medication as a function of co-morbid anxiety in children with ADHD and, a recent meta-analysis examining the effects of co-morbid ODD on response to medication in children with ADHD reported that both co-morbid and non-comorbid children showed significantly reduced ADHD symptoms, and improvements in psychosocial functioning following medication (Biederman et al, 2007). Overall, the research findings exploring treatment outcome in children with ADHD and co-morbid disorders remain inconclusive. This is likely due in part to methodological differences across studies, including sample characteristics, diagnostic entry criteria, and titration rates. Future research will need to further explore co-morbid forms of ADHD and determine whether these co-morbid states are diagnostically meaningful, and qualitatively different sub-types of ADHD (Jensen et al, 2001), as this is likely to have considerable implications for the diagnosis and treatment of children with ADHD.

Neuropsychological Models of ADHD

Evidence points to neuropsychological factors as major contributors to ADHD symptoms (Wahlstedt, 2009). There is now a wealth of studies spanning over 30 years demonstrating that children with ADHD exhibit significant impairment on neuropsychological tests compared with controls (Nigg, 2005). Typically, these tests have been used to measure executive functions (EF) including inhibitory control, working memory and planning (Wåhlstedt, Thorell, & Bohlin, 2009). Barkley's (Barkley, 1997) influential model of EF in ADHD posits poor

inhibitory control as the core deficit of the disorder, which in turn contributes to deficits in sub-ordinate EF such as working memory, regulation of arousal, emotion and motivation, as well as planning (Wåhlstedt, 2009). In line with Barkley's model, several studies have found relations between poor EF and ADHD symptoms in both clinical and community samples (for reviews see Martinussen, Hayden, Hogg-Johnson, & Tannock, 2005; Willcutt et al, 2005). Difficulties in behavioural inhibition (BI) are most noteworthy. The stop-signal task (Logan & Cowan, 1984) has been used extensively to study children's ability to suppress pre-potent and ongoing responses (i.e. inhibitory control). A recent meta-analysis reported that children with ADHD showed slower stop-signal reaction times relative to controls (i.e. slower go and stop processes; Alderson, Rapport, & Kofler, 2007) suggesting deficient inhibitory control. Further support for Barkley's model comes from findings that ADHD children perform significantly more errors of commission (i.e. executing a response when it should have been suppressed) than controls on the Continuous Performance Test (a test where the participant is told to respond to a rare target letter [typically, the target letter makes up between 8 and 30% of the total stimulus set shown] embedded in a successive presentation of non-target letters, (Losier, McGrath, & Klein, 1996).

Despite the well-established findings highlighting poor EF in ADHD samples, recent research has questioned the validity of Barkley's EF theory of ADHD (Sonuga-Barke, 2002; Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005). A recent meta-analytic review examining EF in ADHD children reported group effects for ADHD versus healthy controls in the moderate range (d = .4 - .6;

Willcutt et al, 2005), whilst Nigg and colleagues (2005) report that fewer than half of ADHD children in their sample exhibit any significant impairment on any specific EF task. Further research that questions the centrality of deficits in EF, and in particular inhibitory control in ADHD is the finding that inhibition deficits are not unique to ADHD samples but are also associated with other forms of psychopathology such as CD and ODD (Ketch, Brodeur, & McGee, 2009; Nigg, 2001; Sergeant, Geurts, & Oosterlaan, 2002), contrasting with theoretical accounts emphasizing inhibitory control as the crucial measure characterizing cognitive performance in ADHD. Finally, in a study examining the potential of executive functions to distinguish children with ADHD from healthy controls, the authors reported that inhibitory control was a weak predictor of group classification (although children with ADHD did exhibit significantly slower reaction times on a stop-signal task compared with controls), and response speed, accuracy, and variability better predicted group classification (De Zeeuw et al., 2008). Taken together, these results indicate EF weaknesses *are* associated with ADHD, but they do not support the hypothesis that EF deficits are the *single* necessary and sufficient cause of ADHD in all individuals with the disorder.

An alternative theoretical model of ADHD that seeks to explain the development and maintenance of the disorder is the delay aversion model (Sonuga-Barke, 2002). Within this theoretical framework, inattentive, overactive and impulsive behaviours observed in those with the disorder are assumed to be functional expressions of an underlying motivational style characterized by a motivation to escape or avoid delay (Sonuga-Barke, 2002). The model predicts

that when faced with a choice between immediacy and delay, ADHD children will choose immediacy (Sonuga-Barke, Taylor, Sembi, & Smith, 1992). ADHD children's preference for immediate over delayed outcomes is one of the most consistent findings in the motivational literature (Bitsakou, Psychogiou, Thompson, & Sonuga-Barke, 2009), and evidence exists to support this finding in both clinical (Solanto et al., 2001) and non-clinical samples (Sonuga-Barke et al, 2003; Thorell & Wåhlstedt, 2006).

One paradigm most often used to assess delay aversion (DAv) is the choice delay task (Sonuga-Barke, Williams, Hall, & Saxton, 1996) where a child is given the choice between a smaller sooner (SS) and larger later (LL) reward. ADHD children show a stronger preference for SS over LL rewards compared with controls, even when this leads to less reward overall. This style of responding supports a DAv account of ADHD such that choosing a SS leads to less overall trial delay. Evidence from other studies also supports the DAv model of ADHD. For example, in a recent study by Marco and colleagues (Marco et al., 2009), children and adolescents with ADHD chose SS over LL more than controls and this tendency was exacerbated in a condition during which this response style reduced *total* delay across a session, suggesting an increased motivation to avoid or escape delay. Furthermore, using a choice-delay task where ADHD children had the option to request extra visual stimulation during the delay interval when they chose LL rewards over SS rewards (stimulation condition), Antrop and colleagues (2006) reported a significant increase in the percentage of LL reward choices under this condition compared with a no-stimulation condition (both SS

and LL associated with no stimulation), such that ADHD children's preferences were no different to controls. These results suggest that adding stimulation to the delay interval makes the subjective experience of delay less aversive for ADHD children and indeed, there is some evidence showing that ADHD children show an increased emotional salience for delay (Sonuga-Barke et al, 2004).

Despite some convincing evidence supporting the DAv model of ADHD, a number of recent studies have failed to find a relation between delay aversion and ADHD in both clinical (Scheres et al., 2006; Solanto et al., 2007) and non-clinical samples (Wahlstedt, 2009). Consistent with this research is the finding that there was no significant relationship between DAv and both symptoms of hyperactivity/impulsivity and inattention in a community-based sample of children with high levels of parent and teacher rated ADHD symptoms (Wåhlstedt, 2009). The authors concluded that DAv did not represent an independent neuropsychological pathway to ADHD symptoms, and only when reaction time (RT) variability (increased moment-to-moment variability in RT) was added to the analysis did DAv exert any significant impact on ADHD symptoms, such that those children who displayed problems with DAv *in combination* with increased RT variability showed higher levels of ADHD symptoms compared with control children. These results suggest that both of these neuropsychological impairments combine "synergistically" (Wahlstedt, 2009; p. 275) to yield an effect on ADHD symptoms that is greater than the sum of their independent effects.

The Dual Pathway Model of ADHD

While both the executive function (EF) and delay aversion (DAv) models of ADHD have gone some way in explaining possible underlying psychological mechanisms responsible for the disorder, neither have been successful in terms of presenting a 'unitary' theory of ADHD (Sonuga-Barke, Bitsakou, & Thompson, 2010). Empirically, the contribution of both EF and DAv to ADHD were tested in a head-to-head study by Solanto and colleagues using a clinical sample of school-age children (Solanto et al., 2001). Results showed that a) measures used to assess EF and DAv were not correlated, b) both sets of measure were correlated with ADHD, and c) when combined, both measures proved highly diagnostic, correctly detecting nearly 90% of cases from non-cases. These results have also been replicated in preschool children with ADHD (Sonuga-Barke et al, 2003). These findings imply that both EF and DAv are core, but quite distinct, characteristics of ADHD, and may possibly be the product of two disparate pathways—one underpinned by poor EF and the other by problems with DAv (Sonuga-Barke, 2002). Based upon these findings, Sounga-Barke proposed the dual pathway model of ADHD, which posits that the disorder is the outcome of two independent psychological/developmental pathways; one via cognitive dysregulation resulting from inhibitory dysfunction, and the other via a motivational style.

The model has led to some predictions concerning the specificity of both pathways in relation to the two ADHD symptom domains (inattentive vs. hyperactive-impulsive). In particular, it has been argued that inhibitory

dysfunction should be more strongly related to inattentiveness (Sounga-Barke, 2005) whereas delay aversion should be more strongly related to hyperactivity-impulsivity (Castellanos & Tannock, 2002). Thorell (2007) provided full support for these claims in a study using a community-based sample of school-age children. However, two recent studies provided only partial support for the independent contribution of inhibitory dysfunction and delay aversion pathways to ADHD symptom domains (Wahlstedt, 2009; Wahlstedt, Thorell, & Bohlin, 2009). In both studies, poor inhibitory control represented an independent pathway to symptoms of inattention, whilst delay aversion was not shown to represent a pathway to either ADHD symptom domains (Wahlstedt, 2009; Wahlstedt et al, 2009). However, both studies used community-based samples where approximately only 13.5% of children showed clinical levels of ADHD symptoms according to parent and teacher report (Wahlstedt, 2009), and information regarding severity of symptoms were not provided in one study (Wahlstedt, 2009), making it difficult to apply these results to a clinical population in which symptoms are likely to be more severe. A further challenge to the dual pathway model comes from the finding that a number of children with ADHD appear to be unaffected by either inhibitory deficits or motivational processes (Sonuga-Barke et al, 2004), suggesting the model may need to be adapted to account for such findings.

In light of this evidence, Sonuga-Barke and colleagues (2010) proposed the addition of a third neuropsychological pathway hypothesized to represent temporal processing deficits (TPD) in ADHD. Indeed, there is some evidence that

ADHD children show TPD across a range of timing tasks (Smith, Taylor, Rogers, Newman, & Rubia, 2002). Empirical evidence for the existence of a third, dissociable neuropsychological pathway representing TPD in a sample of 6-17 year olds with ADHD was reported by Sounga-Barke and colleagues (2010). Children with ADHD completed a series of nine tasks designed to tap three domains of functioning, namely inhibitory control, delay aversion, and temporal processing. Results showed that timing, inhibition, and delay deficits were indeed dissociable and over 70% of ADHD children showed evidence of only one deficit. These findings provide initial support for a triple pathway model of ADHD. Based upon this evidence, Sonuga-Barke and colleagues suggest there may be merit in establishing distinguishable "neuropsychological subtypes" of ADHD (Sonuga-Barke et al, 2010, p. 353), such as inhibitory and timing ADHD subtypes. However, results will need to be replicated in larger samples.

Clearly, the possibility of different neuropsychological subtypes of ADHD (e.g. inhibitory dysfunction vs. delay aversion pathways vs. timing deficits) has clinical implications for the treatment of the disorder and Sonuga-Barke (2005) has suggested there may be merit in tailoring treatments to specific subtypes. For example, using a 'delay fading' technique, which reorganizes the child's delay experience leading to increased tolerance for delay for delay-averse children, whereas attention and cognitive training may be targeted at children who display primarily executive function deficits (Sonuga-Barke, 2005).

Overall, research investigating the neuropsychological deficits in ADHD highlight that it is a heterogeneous disorder (Sounga-Barke, 2005), and the

finding that a substantial number of children with high levels of ADHD symptoms do not exhibit significant impairment on neuropsychological measures suggests that other potential factors need to be included to fully explain ADHD (Bitsakou et al, 2009; Nigg & Casey, 2005; Sonuga-Barke et al, 2003). Indeed, researchers stress the importance of studying the neuropsychological heterogeneity of ADHD within the same sample as well as evaluating such heterogeneity within ADHD subtypes (Nigg, 2005).

Temporal Processing in ADHD

Temporal processing skills have been posited to play an important role in the deficits observed in ADHD. For example, deficits in time estimation could underlie problems of impulsiveness, such as problems with waiting, delaying responses, and delaying gratification (Smith et al, 2002). Temporal processing skills in ADHD have been measured using a variety of tasks, including verbal time estimation, time reproduction (reproduction of a previous time interval typically measured in seconds), and time discrimination (discrimination of time intervals differing in milliseconds).

Overall, research evidence shows that the performance of children with ADHD during temporal processing tasks is more inaccurate compared with control performance. Specifically, children with ADHD significantly underestimate temporal reproductions, leading to shorter reproduction of time intervals (Smith et al, 2002; Sonuga-Barke, Saxton, & Hall, 1998), and also show evidence of significant impairment in their time discrimination abilities. For

example, Smith and colleagues (2002) reported that children with ADHD were impaired in their ability to discriminate between brief intervals of time, which differed by only several hundred milliseconds, such that time intervals had to be 50 ms longer for ADHD children in order to be discriminated, compared with controls. Rubia and colleagues (Rubia, Smith, & Taylor, 2007) also reported that children with ADHD made significantly more errors on a time discrimination task compared with controls. Furthermore, they showed that time perception deficits were a sensitive group discriminator, correctly classifying up to 70% of cases and controls.

The findings supporting temporal processing deficits in ADHD have led some researchers to propose a pure time perception deficit theory of ADHD (Smith et al, 2002). For example, Smith and colleagues (2002) suggested that the deficits observed in ADHD children's ability to discriminate between very brief durations of time—typically differing by 300 ms—could not be accounted for by other impairments typically shown in ADHD (i.e. deficits in working memory, problems with motivation, delay aversion, and sustained attention), thus providing direct evidence for a pure time perception deficit in children with the disorder. However, more recent evidence showing that timing, inhibition, and delay deficits in ADHD are dissociable and that substantial subgroups of children with ADHD show impairment in only *one* domain challenges the notion that timing deficits may be the underlying core of the varied range of problems seen in ADHD, and casts doubt upon the pure time perception deficit theory of ADHD (Sonuga-Barke et al, 2010).

Intra-subject Variability in ADHD

Intra-subject variability (ISV) is the degree to which performance varies throughout a measurement period. For example, in a reaction time study (RT), low ISV would lead to a consistent mean RT with little variation on individual trials (i.e. a low standard deviation), whereas a high ISV would lead to a less consistent mean RT due to a higher variance in individual response times (i.e. a high standard deviation). One of the most consistent findings in children with ADHD is increased ISV in response time across varying tasks, compared to typically developing children.

Klein and colleagues (Klein, Wendling, Huettner, Ruder, & Peper, 2006) investigated in more detail the factors that contributed to ISV in children with ADHD. Using a variety of cognitive paradigms—Continuous Performance Test (CPT), Stop Signal Task (SST), N-back Task (NBT), and Go/NoGo Task (GNG)—they determined that group differences comparing ADHD children and controls were largely due to greater variability in response time in children with ADHD, for example, measures of dispersion such as standard deviation were increased for this population. Further support for increased ISV in children with ADHD comes from Rubia and colleagues (2007). Using a task battery of cognitive control tasks that sought to measure motor, and cognitive inhibition, sustained attention, and time discrimination, findings revealed that children with ADHD showed increased ISV and premature responding compared to control

children. Furthermore, this general pattern of inconsistent and premature response style proved to be the most sensitive measure of group discrimination. Future research on increased ISV in ADHD is needed. In particular, Klein and colleagues (2006) raise the interesting question surrounding the differentiation of ADHD subtypes, for example inattentive vs. hyperactive/impulsive subtype, according to measures of ISV.

ADHD and Genetics

Adoption, twin, and family studies show that there is a strong genetic aetiology for ADHD (Daley, Sonuga-Barke, Thompson, & Chen, 2008). Generally, heritability estimates range from 60% to 95% (Thapar, Langley, Owen, & O'Donovan, 2007), and a review of twin studies revealed a pooled estimate of 76% (Farone & Doyle, 2001), suggesting that ADHD is a highly heritable condition. In an attempt to examine which particular genes might be implicated in ADHD, molecular genetic research has produced a number of plausible candidate genes, including those involved in the synthesis and functioning of neurotransmitters in the dopaminergic (e.g. dopamine receptor genes *DRD4* and *DRD5*; and dopamine transporter gene *DAT1*), serotonergic [e.g. serotonin transporter gene (*5HTTLPR*)], and noraderenergic systems [Catechol-O-methyl transferase (*COMT*)]; see Sharp, McQuillin, & Gurling, 2009 for a comprehensive review). Dopamine genes have been the initial candidates based on the site of action of the stimulant drugs that have proved efficacious in addressing the core symptoms of ADHD. Neuroimaging studies also show an increase in density of

dopamine receptors and dopamine binding in the striatum of those with ADHD (Volkow et al., 1998).

The DRD4 gene is the most consistently replicated molecular genetic finding in ADHD and a recent meta-analysis found that the DRD4 7-repeate allele increases the risk for ADHD, although only moderately (Li, Sham, Owen, & He, 2006). More recently, attention has focused upon the relationship between candidate genes for ADHD, in particular DRD4, and neuropsychological phenotypes of the disorder. The most consistent results highlight the association between high reaction time variability and the absence of the 7-repeate allele (Kebir, Grizenko, Sengupta, & Joober, 2009). However, a range of methodological issues such as small sample sizes, and a lack of standardization of neuropsychological tasks between studies suggest results should be interpreted with caution.

Genes associated with noradrenergic and serotonergic systems have also been implicated in ADHD (Wermter et al. 2009). In particular, genetic variants of an adrenergic receptor gene may be more relevant for inattentive than hyperactive/impulsive symptoms (Roman, Rohde, & Hutz, 2002; Schmitz et al., 2006). Candidate genes studied within the serotonergic system are those coding for the serotonin transporter, and the 1B and 2A serotonin receptors (Wermter et al. 2009). However, findings are inconsistent, with some studies reporting an association between serotonergic transporter and receptor genes and ADHD (Quist et al., 2003), and others failing to find an association (Ickowicz et al. 2007; Xu et al. 2008).

Thus far, findings from genetic studies in ADHD have been inconsistent despite the high heritability of the disorder. Candidate gene association studies have only explained a small percentage of the genetic component of ADHD and genome-wide association studies (GWAS) based on 958 parent-child trio's have not reported any significant findings (Neale et al. 2008). Furthermore, GWAS findings show little evidence supporting a *direct* involvement of dopaminergic, noradrenergic, and serotonergic pathways, or regulators of neurotransmission in ADHD (Neale et al. 2008). The paucity of significant findings resulting from GWAS may be attributable to a number of causes. For example ADHD is considered a multifactorial disorder (i.e. an interaction of multiple genes *and* environmental factors) involving multiple genetic factors, all with a small effect, and as such, any genetic effects might only be identified through studies with very large sample sizes. Additionally, the complex interplay between genetic and environmental factors, also known as gene x environment interaction (G x E), may make a strong contribution to the heritability of ADHD, thus confounding the detection of any true genetic effect. Indeed, recent research has highlighted the complex relationship between genetic and environmental influences in the development and continuity of ADHD (Thapar et al, 2007), and it is now generally accepted that ADHD is the result of interplay between genetic and environmental factors (Wermter et al., 2010). Results from gene-environment studies in relation to ADHD are summarized below.

Gene-Environment Interaction in ADHD

Gene-environment interactions may be particularly important in ADHD, as research has implicated a number of aspects of the biological environment (e.g. intrauterine exposure to alcohol and maternal smoking, low birth weight, birth complications, and blood lead levels) and psychosocial environment (e.g. parenting quality, maternal expressed emotion, and severe early deprivation) as potential risk factors for the disorder (Laucht et al., 2007). To date, most gene-environment studies on ADHD have focused on pre-natal exposure to maternal risk factors, such as maternal smoking, and intrauterine exposure to alcohol (see Das Banerjee, Middleton, & Farone, 2007 for a review of findings). However, there is now emerging evidence that aspects of the post-natal social environment interact with genes to influence the probability of developing ADHD. The majority of gene-environment studies in ADHD have focused upon aspects of maternal parenting, including expressed emotion (EE; Sonuga-Barke et al., 2009) parenting quality (Sheese, Voelker, Rothbart, & Posner, 2007), parental sensitivity (Bakermans-Kranenburg & van Ijzendoorn, 2006), and parental warmth (Propper, Willoughby, Halpern, Carbone, & Cox, 2007). General family social adversity, such as marital discord, parental psychopathology, and single parenthood (Laucht et al, 2007), as well as severe early deprivation (Stevens et al. 2009) have also been examined in gene-environment investigations.

Studies investigating the impact of psychosocial adversity on child ADHD symptoms and externalizing behaviour in the presence of high-risk genes *DAT1* (Laucht et al, 2007) and *DRD4* (Bakermans-Kranenburg & van Ijzendoorn, 2006)

report that children who are exposed to *both* environmental and genetic risk factors show significantly more inattention, higher levels of hyperactivity-impulsivity (Laucht et al, 2007), and oppositional behaviour (Bakermans-Kranenburg & van Ijzendoorn, 2006) compared with children without this combination of risk factors. In a replication of Bakermans-Kranenburg and van Ijzendoorn (2006) study, which showed maternal insensitivity was associated with externalizing behaviour only in children carrying the *DRD4* 7-repeate allele, Propper and colleagues (2007) reported that parental warmth was protective against externalizing behaviour only in the *absence* of the *DRD4* 7-repeate allele, and only for African-American children. Although these findings are in contrast to those of Bakermans-Kranenburg and van Ijzendoorn (2006), they do contribute to an emerging body of research that highlights the conditional relationship of genes and environment in the prediction of behavioural disorders.

Further evidence for the influence of gene-environment interaction on early child behaviour was reported by Sheese and colleagues (2007), when they examined the influence of the *DRD4* 7-repeate allele and observed parenting quality, including supportive, respectful, and stimulating parenting on sensation seeking behaviours (activity level, high-intensity pleasure, and impulsivity) in infants. Results showed that the impact of parenting quality was moderated by the presence of a specific *DRD4* genotype, such that infants with the 7-repeate allele were influenced by parenting quality, whereas infants without the allele were uninfluenced by parenting quality. In particular, for the 7-repeate present group lower quality parenting was associated with significantly higher levels of infant

sensation seeking compared to infants who received higher quality parenting. The authors concluded that the DRD4 7-repeate allele appeared to increase sensitivity to environmental factors, in this case parenting.

Sounga-Barke and colleagues (2009) reported a similar pattern of results to Sheese et al (2007). In their study, they examined whether the effects of positive maternal expressed emotion (PMEE) in male ADHD children, in terms of the development of conduct problems (CP), was moderated by genetic variants within dopamine transporter (DAT1), dopamine receptor (DRD4), and serotonin transporter (5HTT) genes. The results suggested that the impact of PMEE was moderated by the presence of specific *DAT1* and *5HTTLPR* genotypes: children with the 9/9R or 9/10R of the *DAT1* and the s/s or the s/l *5HTTLPR* genotype showed sensitivity to the effects of maternal PMEE, while those with the *DAT* 10/R/10R or the *5HTPPLPR* 1/1 genotypes did not. Specifically, children with the 'sensitivity' genotypes who were also exposed to low PMEE showed more parent and teacher-rated CP compared with children who were exposed to high PMEE. In general, the pattern of results emerging from this study suggests that genetic make-up alters the susceptibility of children to variations in their social environment. More specifically, the authors propose an 'insensitivity' hypothesis, whereby certain genotypes simply reduce (and others increase) the sensitivity to environmental effects. Indeed in this study, children who did not carry the 'sensitivity' genotypes showed a general insensitivity to environmental factors whether they had a positive (i.e. high PMEE) or negative effect (i.e. low PMEE),

such that there was no significant difference in their behaviour under either environmental condition.

Stevens and colleagues (2009) reported a similar set of findings as those described by Sonuga-Barke et al (2009) in a longitudinal study of Romanian adoptees exposed to severe early institutional deprivation before the age of 3.5 years. The results showed that the risk for symptoms of ADHD associated with early deprivation was moderated by the *DAT1* genotype. Children with this genotype *and* high environmental risk (i.e. 6 months or more deprivation) showed significantly more ADHD symptoms compared with children with a combination of low genetic (absence of *DAT1* genotype) and environmental risk (i.e. less than 6 months deprivation), as well as those children with high genetic risk only. Additionally, the gene-environment interaction between risk factors was significant from early adolescence (11 years) onwards, providing some evidence for continuities in gene-environment effects across development.

Overall, gene-environment studies in ADHD suggest a complex model of risk and resilience in the development of the disorder and findings from genetic studies of ADHD suggest that the genetic underpinnings of the disorder are complex, with many genes exerting small effects. As the literature reviewed suggests, a complex interaction between susceptibility genes and environmental risk factors also contribute to risk and resilience in the development of the disorder. Although uncovering susceptibility genes for ADHD may help to understand the emergence of ADHD symptoms, it has been speculated that unique environmental factors may play a role in determining outcome for children. One

such environmental factor that has been implicated in childhood ADHD is parenting. Research examining the influence of parenting style (e.g. negative or positive parenting) and parenting cognitions (e.g. parental sense of competence, expectations and attributions for child behaviour), as well as parental ADHD symptoms upon child ADHD are summarised below.

Parenting Influences and ADHD

Parenting Style

Research evidence has consistently shown that the parent-child relationship for children with ADHD is problematic (Johnston & Mash, 2001). As well as higher levels of child noncompliance, anger, and negativity, parents of children with ADHD exhibit a more controlling, authoritarian, and intrusive parenting style when interacting with their ADHD children compared with comparison groups of mothers (Johnston & Mash, 2001; Lange et al., 2005). Furthermore, mothers of children with ADHD are less approving and encouraging, and express less positive affect towards their children (DuPaul, McGoey, Eckert, & VanBrakle, 2001; Keown & Woodward, 2002). As well as showing high levels of negativity in parent-child interactions, parenting stress, and parental psychopathology (Chronis et al., 2003) are common in families of children with ADHD.

Whilst there remains little doubt in the research literature that negative parenting styles are associated with childhood ADHD, the majority of studies examining associations between specific parenting styles and increased child ADHD symptoms rely on correlational designs and thus cannot directly address

causality. Consequently, the causal role of parenting style in relation to the development and maintenance of childhood ADHD remains unclear. The theoretical model most often used to address the associations between parenting and child ADHD symptoms is transactional, with child symptoms and parenting behaviour reciprocally related, exerting mutual influences over time (Daley, 2006). The emphasis on the transactional nature of the parent-child relationship follows from Patterson's (1982) theory of *coercive family process*, whereby parents, following repeated ineffective interactions with their difficult-to-manage children, either withdraw or respond with hostility, which serves to escalate the child's behaviour. Over time, both the child and parent are negatively reinforced for their maladaptive behaviour (i.e. child misbehaviour and ineffective parenting), which essentially strengthens and escalates the coercive cycle (Patterson, 1982). This transactional process is one of the most well-established findings within the child conduct problem literature and high levels of harsh and inconsistent parenting, and low levels of parental warmth have been found to predict later child conduct problems in a number of studies (for a review see Campbell, 1995). What is less clear is whether the bi-directional nature of parenting style and child problem behaviour found in the child conduct problem literature extends to disorders, which are primarily neuro-developmental in origin, such as ADHD.

In an effort to examine the directional relationship between parenting and ADHD symptoms, Lifford and colleagues (Lifford, Harold, & Thapar, 2008) recruited a community sample of 194 two-parent families of school-age children

and asked parents to report on child ADHD symptoms, and children to report on their relationship in terms of feelings of acceptance and rejection with their mother and then with their father to address how the interplay between the parent-child relationship and child ADHD symptoms developed over time. A longitudinal design was employed with measures administered 12 months after baseline assessment. Overall, results for mothers demonstrated that child ADHD symptoms significantly influenced parenting style over a one-year period, and in particular elicited a rejecting parenting style from mothers. There was no evidence to suggest that maternal rejection influenced child ADHD symptoms over the one-year period. In contrast to maternal results, father-child relations and in particular paternal displays of rejection towards the child influenced child ADHD symptoms over the longer-term, while there was no evidence to suggest that child ADHD symptoms influenced the father-child relationship over time. Whilst this study highlights the finding that the relationship between parent-child rejection and child ADHD symptoms differed for mothers and fathers, it is unclear whether these findings would be replicated in clinical populations. Due to the community nature of this sample, only a small proportion of children ($N = 2.6\%$ at baseline and $N = 1.5\%$ at 12-month follow-up) had scores, which fell into the clinical category on the ADHD assessment measure. Further research with a clinical sample needs to be conducted.

Given that parenting style and child ADHD symptoms are each associated, it seems pertinent to question which parent and child variables determine parenting styles and practices? That is, are there particular child (e.g. child age or

severity of child behaviour) and parent variables (e.g. sense of competence or social support) that are directly associated with more negative and less effective parenting styles typically observed in parents of children with ADHD? A recent study by McLaughlin and Harrison (2006) interviewed 150 mothers of school-age children diagnosed with ADHD and asked them to report on the severity of child disruptive behaviour, frequency and severity of child ADHD symptoms, their own parenting competence, perceptions of social isolation, and parenting practices, in order to examine the relationship among child characteristics, parent characteristics, and parenting practices. Commensurate with previous research, results revealed that greater severity of child disruptive behaviour and lower sense of parental competence were the strongest individual predictors of less effective parenting practices over and above the effects of child ADHD symptoms and parent social isolation. The lack of a significant relationship between child ADHD symptoms and parenting practices in this study is consistent with previous studies demonstrating that the use of ineffective parenting practices is more strongly associated with child disruptive behaviour rather than with the core symptoms of ADHD (Johnston, 1996). However, it should be noted that 81% of children in this sample had been prescribed psychostimulant medication, which may have reduced the severity and frequency of ADHD symptoms.

Importantly, the results of McLaughlin and Harrison's (2006) study highlight that perceptions of parenting competence can have a direct influence on parenting behaviours and this finding has been replicated in previous studies. For example, Mash and Johnston (1983) reported that sense of parenting competence

was lower in mothers of children with ADHD than in mothers of non-problem children. More recently, Hoza and colleagues (2000) reported that both mother and father parenting cognitions regarding efficacy in the parenting role were important predictors of children's treatment outcome at 14-months follow-up following either parent training, medication management, or a combination of both treatments. In particular, lower maternal self-esteem and lower parenting efficacy in fathers, as well as fathers attributions of child noncompliance to their ADHD child's insufficient effort were all associated with poorer child treatment outcome. The results of this study highlight the importance of addressing parental cognitions prior to treatment as they accounted for a significant amount of variance in children's treatment outcome, even after controlling for treatment effects.

Whilst parenting variables, in particular harsh, negative and rejecting parenting, have been associated with ADHD (Johnston & Mash, 2001), it is generally accepted that parenting is unlikely to be the ultimate cause of ADHD (Barkley, 1998) and indeed, studies have suggested that parenting style is most closely related to the presence of co-morbid oppositional defiant disorder (ODD) or conduct disorder (CD) among children with ADHD as opposed to the core symptoms of the disorder itself (Johnston & Mash, 2001; McLoughlin & Harrison, 2006; Whalen & Henker, 1999). For example, Johnston and colleagues (2002) reported that observed maternal responsiveness (defined as the mothers' ability to adapt her behaviour to her child's abilities, needs, and interests) during mother-son interaction was negatively associated with mother-reported child

conduct problems, but not with child ADHD symptoms, in a sample of school-age boys meeting DSM-IV criteria for ADHD. These results imply that maternal responsiveness is uniquely related to child conduct problems in children with ADHD, with lower levels of maternal responsiveness being associated with greater severity of child conduct problems. Whilst this study suggests that parenting difficulties are most closely related to child conduct problems in families of children with ADHD, a more recent study provided contrary evidence by reporting that certain parenting practices were specific to child ADHD over and above the overlap of ADHD with conduct and oppositional problems (Ellis & Nigg, 2009). Using a sample of school-age children with a diagnosis of ADHD, Ellis and Nigg (2009) showed that mother and father inconsistent discipline, and father low involvement were associated with ADHD, independent of child oppositional and conduct problems. Moreover, paternal low involvement and inconsistent discipline were uniquely related with child inattention, demonstrating that particular parenting styles were related to certain domains of child behaviour.

The association between negative parenting and child ADHD has been replicated across many studies. However, one area of research that has received much less attention is the extent to which adult ADHD affects parenting. To date, only a few studies have examined the relationship between parental ADHD and parenting. Findings from these studies are discussed below.

Parental ADHD

Research has shown that parents with ADHD who also have children with ADHD display lax and over-reactive parenting styles (Harvey, Danforth, Eberhardt McKee, Ulaszek, & Friedman, 2003), poor parental monitoring of child behaviour, inconsistent discipline (Chronis-Tuscano et al., 2008; Murray & Johnston, 2006), lower levels of involvement and positive parenting (Chronis-Tuscano et al, 2008; Psychogiou et al, 2007), and less effective problem-solving concerning child-rearing issues, compared with parents without ADHD (Murray & Johnston, 2006). Parental ADHD is also associated with higher levels of family conflict and less family cohesion relative to those without parental ADHD (Biederman, Faraone, & Monuteaux, 2002).

Although preliminary evidence suggests difficulties in parenting behaviour in parents with ADHD, research is confounded by the concurrent presence of ADHD in the children of the parents under investigation. Given that parenting a child with ADHD is challenging, it is difficult to ascertain whether findings regarding maladaptive parenting behaviours result from parental ADHD, from the challenges of raising a child with ADHD, or both. In an attempt to control for the impact of child ADHD on parenting in mothers with ADHD, Murray and Johnston (2006) compared mothers with and without ADHD on a range of parenting variables. They found that mothers with ADHD reported significantly poorer parental monitoring and inconsistent parenting compared with mothers without ADHD, even though both groups had children with ADHD. A more recent study using a community sample of mothers with high levels of

ADHD found that these mothers reported lower parenting self-esteem, a more external parenting locus of control (viewing child behaviour as being outside the reach of parenting efforts), and less effective disciplinary styles compared with women with lower levels of ADHD symptoms (Banks, Ninowski, Mash, & Semple, 2008). Importantly, children in this study did not show significant behavioural problems or ADHD symptoms, and as such, the findings suggest that child behaviour did not account for the presence of parenting difficulties, but rather maternal ADHD symptoms made an independent contribution to maladaptive parenting cognitions and behaviours.

The finding that maladaptive parenting cognitions and behaviours are present in mothers with ADHD but who do not have children with ADHD suggests that previous research reporting parenting difficulties in those mothers with ADHD who also have children with the disorder (e.g. Harvey et al., 2003) may not be fully accounted for by a history of interacting with a difficult child. Indeed, a recent study by Ninowski and colleagues (Ninowski, Mash, & Benzies, 2007) reported that maternal ADHD symptoms were related to maladaptive cognitions during the prenatal period in a community sample of first-time expectant women. In particular, ADHD symptoms significantly predicted less positive expectations regarding the infant and the future maternal role and maternal self-efficacy. Thus, consistent with Banks and colleagues (2008), these findings suggest that maternal ADHD symptoms may contribute to a mother's expectations regarding maternal abilities and self-efficacy independent of, or in interaction with child difficulties. These findings serve to highlight the

importance of early intervention with mothers with ADHD, who may be at-risk for a variety of difficulties during the postpartum period, such as poor adjustment to the parenting role and lower perceived efficacy (Porter & Hsu, 2003).

Further research examining the impact of parental ADHD on parenting practices has been investigated by Psychogiou and colleagues (Psychogiou, Daley, Thompson, & Sonuga-Barke, 2007; Psychogiou, Daley, Thompson, & Sonuga-Barke, 2008). In a series of studies examining the impact of maternal ADHD symptoms on mother's parenting practices, interactional style, and expressed emotion, Psychogiou and colleagues (2008) tested two opposing hypotheses: the similarity-fit hypothesis, which predicts that parent and child similarity will improve parenting, and the similarity-misfit hypothesis, which predicts the opposite. The first study examined associations between maternal and child ADHD symptoms and child-specific rearing attitudes of 95 mothers with school-age children. The second study sought to test further the similarity-fit/misfit hypotheses using direct observation of mother-child interaction, including ratings of parental affection, criticism, and controlling parenting, and maternal expressed emotion in 192 mothers of preschool children with ADHD symptoms. In both studies, maternal ADHD symptoms appeared to ameliorate the effects of child ADHD symptoms on negative parenting. Parental response to children with high ADHD symptoms was more positive and affectionate when the mother also had high ADHD symptoms. The results support the similarity-fit hypothesis, whereby parent and child characteristics act together to create a more positive parenting environment than would be expected on the basis of the

characteristics of either the parent or child alone. The authors put forward a number of reasons that could explain such an effect. For example, ADHD children may share a motivational and cognitive "tempo" (Psychogiou et al, 2008; p. 133) with their ADHD mothers and thus enter into conflict less often than when a similarity does not exist. Alternatively, parents' with high levels of ADHD symptoms may be more tolerant of their child's difficult behaviour due to a raised level of empathy, arising from them having experienced similar challenges during their own childhood.

In an effort to replicate the similarity-fit hypothesis, Psychogiou and colleagues (2007) conducted a further study, which examined the association between child and adult ADHD symptoms on specific child-rearing practices, including positive parenting, inconsistent discipline, and physical punishment, in 278 mothers and 85 fathers recruited from a community sample of local schools and an ADHD support group. Commensurate with previous findings supporting the similarity-fit hypothesis for mother and child dyads with high ADHD symptoms, the results of this study also revealed that the effects of child ADHD on negative parenting were ameliorated when mothers too had high levels of ADHD symptoms. The opposite effect was found for fathers: fathers with high levels of ADHD engaged in more negative parenting when their child also had high levels of ADHD symptoms, supporting a similarity-misfit hypothesis for fathers. Future research should attempt to elucidate the possible mechanisms that account for these associations, as they clearly pose implications for the treatment of childhood ADHD. For example, it will be important to consider parental

ADHD symptoms in the design and implementation of parent training (PT) programmes. Indeed, in a recent trial, PT for preschoolers was less effective when mothers had high ADHD symptoms themselves (Sonuga-Barke, Daley, & Thompson, 2002). Clearly, more research is needed to explore the implications of these parenting characteristics on treatment outcome for children with ADHD. Furthermore, results will need to be replicated in a clinical sample given that only a small proportion (n=17) of the current sample was recruited via an ADHD support group, suggesting some level of clinically relevant symptomatology. Indeed, participants from the support group had more symptoms than those recruited from schools according to both maternal and paternal ratings. Independent observation of parenting characteristics would also have strengthened the results of this study, as opposed to using self-report measures only.

Overall, the research evidence unequivocally highlights the role of parenting in childhood ADHD, whether the parent shares the diagnosis, or not. Further evidence for the role of parenting in ADHD comes from intervention studies, which have evaluated the efficacy of parent training in the treatment of children with the disorder. The research evidence for parent training interventions in childhood ADHD is discussed below. However, other interventions for children with ADHD are briefly touched upon first.

Interventions for ADHD

The Multi-modal Treatment Study of ADHD

The American Multi-modal Treatment Study of ADHD (MTA Cooperative Group, 1999) is the largest treatment study of childhood ADHD to date. The aim of the study was to compare the relative effectiveness of treatments of well-established efficacy for children diagnosed with combined type ADHD. The study began with 579 children aged between 7 and 9.9 years who were randomized to one of 4 treatment conditions over a 14-month period. Treatment conditions were: medication management (MedMgt) tailored to each child's needs using a sophisticated titration protocol; multi-component behaviour therapy (Beh), which included 27-session group parent training supplemented with eight individual parent sessions, an 8-week summer treatment programme, and 12 weeks of classroom behaviour therapy and teacher consultation; a combination of MedMgt and Beh (Comb); or routine community care (CC). Outcomes were assessed in multiple domains (i.e. child disruptive behaviour, internalizing symptoms, academic achievement, parent-child relations, and social skills) at baseline, immediately after treatment (14 months), and 24-, 36-, 72-, and 96-months after initial treatment assignment.

The initial MTA findings (MTA Cooperative Group, 1999) reported improvements over baseline in *all* treatment groups, but Comb and MedMgt children showed significantly greater improvements in ADHD and Oppositional Defiant Disorder (ODD) symptoms than did Beh or CC children. Further analysis

revealed that Comb and MedMgt did not differ significantly in any direct comparisons. However, children who received Comb treatment but not MedMgt showed significantly better outcomes than Beh and CC for internalizing symptoms, teacher-rated social skills, parent-child relations, and reading achievement. Evaluations at 10-month post-intervention (i.e. 24 months after treatment assignment) revealed that approximately half of the initial advantage of Comb and MedMgt had dissipated (Abikoff et al. 2004). At 22-month post-intervention (i.e. 36 months after treatment assignment), analyses showed although improvements over baseline were maintained for all four treatment groups, the relative advantage of intensive 14-month medication management in the MedMgt and Comb groups had attenuated, meaning there were no longer significant treatment group differences in ADHD/ODD symptoms. Molina and colleagues (2009) evaluated outcomes at 6 (i.e. 72 months after treatment assignment) and 8 years (i.e. 96 months after treatment assignment) after treatment, when the sample ranged in age from 13 to 18 years. Results showed no differences between the four treatment groups after 6 and 8 years on measure of psychiatric symptoms, academic, and social functioning. Furthermore, no group differences were reported on measures salient to adolescence such as grade point average, or arrest rates. Overall, these results provide evidence that the differential effects of treatment on a range of child symptom and functioning outcomes observed during and immediately after the "active" intervention phase, dissipate over the longer-term.

However, a further analysis of outcome data by Molina and colleagues (2009) showed that child ADHD symptom trajectory in childhood was a better predictor of outcome at both 6 and 8 years, than type of treatment received during childhood for 14 months. Specifically, results suggested that initial clinical presentation in childhood, including severity of ADHD symptoms, conduct problems, intellectual functioning, social skills, socio-economic advantage (i.e. more married parents, and higher income), and strength of ADHD symptom response to any treatment, were better predictors of later adolescent functioning than the type of treatment received during the trial. These conclusions were based upon analyses comparing children's 6- and 8- year functioning on the basis of their previous ADHD symptom "latent class" membership, whereby children in "class 2" were characterized by the strongest and most persistent decrease in ADHD symptoms between baseline and 36 months, compared with children in classes 1 and 3, who generally showed a less favorable response to treatment. Compared with children in class 1 (34% of the sample), and class 3 (14% of the sample), children in class 2 (52% of the sample) showed better scores at baseline on a range of variables, as mentioned above. However, it is important to note that for most of the MTA sample (i.e. those in classes 1 and 2; 86% of the sample), functioning was still improved over baseline levels during the 6- and 8-year follow-up, although the results do suggest that gains may be greatest for children with the least severe initial presentation.

More importantly, the relevance of the MTA study results to interventions delivered within clinical settings is unclear. As mentioned above, the medication

management arm of the study was carefully titrated to the child's needs, whilst the multi-component behaviour therapy intervention would be difficult to replicate clinically as it involved a number of individual sessions for the child, summer camps, additional classroom help, support for the child's teacher, and group and individual sessions for the parents (Greene & Ablon, 2001).

Working Memory Training

Working memory (WM) impairments are prominent in psychological models of ADHD (Barkley, 1997). There is evidence of impairment in WM from electrophysiological studies of the P300 component (a positive waveform in the electroencepholagram that occurs approximately 300 ms after the onset of a stimulus), which provides a sensitive index of attentional and WM demands of a task, although findings are not always consistent (Tannock, 1998). Research implicating WM deficits in ADHD has led to a focus on WM training as a possible treatment target for children with the disorder. The number of controlled trials evaluating the efficacy of WM training for children with ADHD is currently limited, although one such study has reported beneficial effects of WM training.

A randomised controlled trial by Klingberg and colleagues (2005) investigated whether systematic training of WM tasks during a 5-week period would improve WM, other executive functions, and reduce parent and teacher-reported ADHD symptoms in a sample of 7-12 year old children with a diagnosis of ADHD. The treatment consisted of performing WM tasks on a computer, including visuospatial WM tasks (remembering the position of objects in a 4 x 4

grid), as well as verbal tasks (remembering phonemes, letters, or digits). Using the span-board task—a visuospatial WM task that was not part of the treatment—as the main outcome measure, there was a significantly greater improvement from baseline to post-intervention in the treatment group, compared with the comparison group. Treatment gains were maintained at 3-month follow-up. Significant treatment effects were also observed for other measures of WM, including response inhibition, verbal WM, and complex reasoning. However, only improvements in verbal WM and response inhibition were maintained at follow-up. Results also revealed that the WM training had a very strong effect on parent-rated child attention but not on teacher ratings. Specifically, parents reported a significant reduction in child symptoms of inattention and hyperactivity/impulsivity and these gains were maintained at 3-month follow-up. The results of this study suggest that WM can be improved by systematic training. In addition, WM training led to benefits in the behavioural symptoms of ADHD. The results imply that WM training potentially could be of clinical use for ameliorating the symptoms in ADHD.

Parent Training for ADHD

Parent training (PT) has been found to be efficacious in several areas of child and family functioning in ADHD samples. In particular, improvements following PT include reductions in child ADHD symptoms (Anastopoulos, Shelton, DuPaul, & Guevremont, 1993; Sonuga-Barke et al, 2001) and associated behaviour problems (e.g. Bor et al, 2002; Pisterman et al., 1992) as well as reductions in parenting stress (Anastopoulos et al, 1993; Pisterman et al, 1992). A recent meta-analysis of

behavioural treatments, including PT, for childhood ADHD reported a large effect size (ES = .83) for behavioural treatments (Fabiano et al., 2009), consistent with effect sizes reported for stimulant medication (Conners, 2002) suggesting that behavioural interventions significantly improve the functioning of children with ADHD. Thus, PT is considered one of the most empirically well-validated treatment options for childhood ADHD, and is recommended by the National Institute for Health and Clinical Excellence (NICE) as a first-line treatment in the management of pre-school, and school-age children with moderate symptoms of ADHD (NICE, 2009).

Clinical trials evaluating the efficacy of PT in the treatment of childhood ADHD report reductions in parent-reported child inattention and hyperactive/impulsive difficulties (Jones, Daley, Hutchings, Bywater, & Eames, 2007), and child behaviour problems (Bor, Sanders, & Markie-Dadds, 2002), as well as improvements in parenting competence (Bor et al, 2002) and maternal well-being (Sonuga-Barke, Daley, Thompson, Laver-Bradbury, & Weeks, 2001). In the U.K, there is a convincing evidence-base for three PT interventions in the treatment of childhood ADHD: the Incredible Years Parenting Programme (Webster-Stratton, 1998); the Triple-P Positive Parenting Programme (Sanders, 2002), and the New Forest Parent Training Programme (Sonuga-Barke et al, 2001; Thompson et al. 2009). Each intervention will be described briefly and supporting evidence for their efficacy will be discussed.

The Incredible Years parent-training programme (IY) is a group-based parenting intervention based upon social learning principles (e.g. Patterson,

1982). The aim of the programme is to reduce child problem behaviour and increase positive parent-child relationships. Skills taught on the programme include: a) establishing a positive parent-child relationship through play, b) encouraging praise, reward, and incentive for appropriate behaviours, c) using effective limit setting and giving clear instructions, and d) strategies for managing non-compliance. Parents acquire these skills through therapist-led group discussion, videotape modeling, role-play, shared problem solving, and rehearsal of intervention techniques through weekly home assignments to be carried-out with the child. Parents attend the group for twelve weeks and each weekly session lasts for 2.5 hours. The IY programme has a strong evidence base for reducing child conduct problems in both clinical and community samples, and across different ethnic groups (Hutchings et al., 2007; Reid, Webster-Stratton, & Beauchaine, 2001; Webster-Stratton, 1982; Webster-Stratton & Hammond, 1990). Although IY has not been formally evaluated on children with a diagnosis of ADHD, there is a growing evidence base for its efficacy in the treatment of children with conduct problems *and* ADHD symptoms. Hartman and colleagues (Hartman, Stage, & Webster-Stratton, 2003) reported that 4-7 year old boys with clinical levels of conduct problems and parent-reported attentional difficulties evidenced similar benefits compared with boys who had only conduct problems after parents had attended the 12-week IY programme. A more recent evaluation examined the efficacy of the 12-week IY programme within a community-based sample of pre-school children (3-4 years old) at risk of developing both conduct problems and ADHD (Jones, Daley, Hutchings, Bywater, & Eames, 2007).

Following completion of the programme, the intervention group was associated with significantly lower levels of parent-reported child inattention and hyperactive/impulsive difficulties, compared with the waiting-list control group, even after controlling for post-intervention changes in child deviance. In addition, 52% of those in the intervention condition, compared with 21% in the control condition, displayed clinically reliable improvements post intervention. Further evaluation of the intervention group demonstrated that the post-intervention gains were maintained at 12- and 18-month follow-ups (Jones, Daley, Hutchings, Bywater, & Eames, 2008). These findings suggest that the IY programme is a successful early intervention for pre-school children presenting signs of co-morbid ADHD symptoms and conduct problem behaviour. Future studies will need to establish whether the IY programme is effective for older children with a clinical diagnosis of ADHD.

The Triple-P Positive Parenting programme (Triple-P) consists of an average of ten 1-1.5 hour individual sessions with a trained therapist, and similar to the IY programme, the standard behavioural family intervention (SBFI) is based upon social learning principles. The main aim of the programme is to promote a positive relationship between parents and their children and to help parents develop effective management strategies for dealing with childhood behaviour problems and common developmental issues (Sanders, Turner, & Markie-Dadds, 2002). Triple-P teaches parents strategies to encourage their child's social and language skills, emotional self-regulation, independence, and problem-solving ability. In order to achieve these outcomes, parents are taught a

range of child management skills including: monitoring child problem behaviour; providing brief contingent attention for appropriate behaviour; planned ignoring for minor problem behaviour; giving clear, calm instructions; and time-out. Parenting skills are acquired through active skills training methods that include modeling, rehearsal, feedback, and between–session practice tasks. Videotape modeling is also used to demonstrate positive parenting skills.

In a randomized controlled trial with a sample of families of pre-school children with co-morbid attention/hyperactive difficulties and disruptive behavior, as well as additional family adversity, such as maternal depression, marital conflict, or low income, Bor and colleagues (2002) reported significant reductions in child behaviour problems, including inattention, as well as improvements in parental competence compared with a control group, following the 10-session Triple-P. Improvements in child behaviour problems and parental competence were maintained at 12-month follow-up. However, as with the trial conducted by Jones and colleagues evaluating the efficacy of IY (2007; 2008), Sanders and colleagues (2002) relied on parent reports of child ADHD symptoms as the primary outcome measure. Future studies will need to include independent observation of child behaviour following parent training. Furthermore, the trial evaluating Triple-P used only maternal reports on an inattentive dimension of the Eyberg Child Behaviour Inventory—typically used to measure child conduct problems—as a measure of ADHD outcome (ECBI; Eyberg & Ross, 1978). However, a recent study discovered that the ECBI was not effective at differentiating between children with ADHD and Oppositional Defiant Disorder

(ODD; Weis, Lovejoy, & Lundahl, 2005), questioning the utility of this measure within a treatment outcome study of ADHD. In order to state with more certainty that Triple-P is an efficacious treatment for children with ADHD, future studies will need to recruit samples of children with a clinical diagnosis of the disorder.

In direct contrast to the findings supporting the efficacy of PT in the treatment of ADHD, are results from a number of clinical trials, showing that PT is in general less effective at leading to reductions in the *core* symptoms of ADHD. For example, in a recent study of clinically referred Dutch children with ADHD, a 12-week generic behavioural PT intervention resulted in significant reductions in both externalizing and internalizing child behaviour problems, but not in the core symptoms of ADHD (van den Hoofdakker et al., 2007). Consistent with this finding are the results from the largest treatment study of childhood ADHD to date, the Multi-Modal Treatment Study of ADHD (MTA, 1999), which compared the efficacy of intensive psych-social intervention, medication management, and their combination with that of routine community care. Results showed that medication management was significantly more effective at treating the core symptoms of ADHD compared with psych-social treatment or routine community care. Moreover, combining psychosocial and medication management was no more effective in reducing ADHD symptoms than medication management alone. Interestingly, an alternative outcome analysis using a composite measure of child ADHD symptoms including parent and teacher-rated child externalizing, internalizing and core symptom behaviours, showed that combination treatment resulted in a significantly better outcome compared with

medication management alone and routine community care over the longer-term (Connors et al., 2001). The discrepancies in findings between clinical trials evaluating the efficacy of PT may be due in part to characteristics of the samples recruited. For example, those studies that have reported positive effects of PT on child ADHD symptoms included children who have general patterns of disruptive behaviour and raised levels of ADHD symptoms, but who do not have a rigorous diagnosis of ADHD (Bor et al, 2002; Jones et al, 2007).

One reason why PT may not be most efficacious with regard to treating the core symptoms of ADHD is because they are based upon generic approaches to managing child misbehaviour, which are derived from operant and social learning theories (Patterson, 1982). Parents are taught ways to manage oppositional behaviour associated with ADHD through rule-setting and contingency management (e.g. rewards and consequences). Although these interventions are effective at preventing and treating child conduct problems, they do not target the specific psychological deficits thought to underlie ADHD (e.g. executive dysfunction).

One PT intervention that has been designed specifically for treating the core symptoms of ADHD is the New Forest Parenting Programme (NFPP; Sonuga-Barke et al, 2001; Thompson et al, 2009). Unlike the Triple-P (Sanders, 1999) and Incredible Years PT programmes (Webster-Stratton, 1982)—developed to prevent and treat child conduct and oppositional behaviour—the NFPP has been designed specifically for ADHD populations and is based upon key aetiological theories thought to underlie the disorder. The main aim of the

programme is to achieve long-lasting reductions of the core symptoms of ADHD across multiple settings (e.g. home and school). Typically, the programme is delivered within the home setting during eight weekly visits of 1-hour duration by a trained therapist. In most sessions the therapist works with both parent and child and the home-based approach enables the therapist to use everyday situations to demonstrate and apply parenting strategies, aiding generalization across situations and over time. Parents begin with psycho-education about ADHD, and then move onto parent-child play including positive parenting and extension of language to promote emotional self-regulation, behaviour training to encourage consistent limit setting, and finally attention training to work on improving their child's attention. Core features of the intervention include the concept of 'constructive parenting' whereby parents; a) determine their children's self-regulatory abilities to establish their existing level of competence, b) work within this level of competence (i.e. their zone of proximal development) to set realistic but challenging goals, c) provide support and developmental scaffolding to allow the child to fulfill these goals, d) identify when these goals have been met, and e) set new goals. Parents are required to work on their communication style and the extension of language skills in the child. The use of games, which the parent engages with the child to help him attend, concentrate, take turns, enhance working memory, and learn to wait are also fundamental components of the intervention. Other important aspects of the intervention include improving the quality of the parent-child relationship to increase positive parenting. The use of standard behavioural approaches, based upon social learning theory, in order to

target child non-compliance and oppositional behaviour are also included. Parents are provided with therapist feedback, emphasizing the positive aspects of the parent-child relationship. Furthermore, therapists are trained to pace the intervention to respond to the mental health needs of the parent as parental depression (Psychogiou et al., 2008) or ADHD (Sonuga-Barke et al, 2002) can be barriers to successful PT. Figure 1 represents a schematic description of the structure of the NFPP. Goals and specific treatment targets of the programme are outlined.

<table>
<tr><th rowspan="2">GENERAL GOALS</th><th rowspan="2">TREATMENT TARGETS</th><th colspan="2">PSYCHOEDUCATION</th><th colspan="2">PARENT-CHILD PLAY</th><th>MAJOR REVIEW</th><th colspan="2">PARENT-CHILD TASK</th><th>FINAL REVIEW</th></tr>
<tr><th>Week 1
P</th><th>Week 2
P</th><th>Week 3
P & C</th><th>Week 4
P & C
Video session</th><th>Week 5
P
Feedback on session</th><th>Week 6
P & C
Video session</th><th>Week 7
P & C
Feedback on session</th><th>Week 8
P
Review diaries/ checklists.</th></tr>
<tr><td>IMPROVE PARENTAL STYLE</td><td>P to be -
• understanding
• constructive
• positive
• organised</td><td colspan="2">Assess/engage P; build up C-P relationship

Psycho-education about ADHD</td><td colspan="2">Link C behaviour with ADHD concept. Match programme to P & C needs.</td><td rowspan="3">Review/ strengthen key messages in areas of continuing weakness.</td><td colspan="2" rowspan="3">Continue with the concepts introduced earlier using different techniques adapted to needs of P & C.</td><td rowspan="3">Overall review of progress – highlighting achievements and identify continuing areas of weakness. Developing tailored continuation strategy in each domain.</td></tr>
<tr><td>HELP PARENTS COMMUNICATE</td><td>P to -
• listen
• be authoratative
• be clear
• be consistent</td><td colspan="2">Work on communication, eye contact, short sentences Praise</td><td colspan="2">Extend use of teachable moments within the session. Brain storming and modelling</td></tr>
<tr><td>IMPROVE MANAGEMENT OF ODD</td><td>P to learn -
• behaviour principles
• preventative strategies
• Contingencies</td><td colspan="2">Work on -
• keeping calm
• giving choices</td><td colspan="2">Importance of pro-activity. rules/boundaries. behaviour charts quiet time/time out (week 4)</td></tr>
<tr><td>IMPROVE REGULATION THROUGH INTERACTION AND GAMES</td><td>P to improve -
• joint play/
• turn taking
• scaffolding of skills.
• C self regulation.</td><td colspan="2">Introduce scaffolding concept.
Bring in homework.
Introduce teachable moments/training games (week 2).</td><td colspan="2">Fun play and development of language and self control. Review games progress/ adjust targets.</td><td>Increase difficulty of games/ review teachable moments</td><td colspan="2"></td><td></td></tr>
</table>

Figure 1. The structure of the New Forest Parenting Programme highlighting treatment goals and the therapeutic context across the 8-week programme from "A small-scale randomized controlled trial of the revised new forest parenting programme for preschoolers with attention deficit hyperactivity disorder" by Thompson et al, 2009, *European Journal of Child and Adolescent Psychiatry, 18,* 605-616. *P* parent, *C* child

Two clinical trials have evaluated the efficacy of NFPP for children with ADHD (Sonuga-Barke et al., 2001; Thompson et al; 2009). Both reported large and significant treatments effects on parent-reported child ADHD symptoms. Furthermore, Sonuga-Barke and colleagues (2001) reported significant improvements in maternal wellbeing compared with mothers in a parent counselling treatment condition and a waiting-list control, whilst Thompson et al (2009) found that mothers in the NFPP condition showed a significant reduction in negative expressed emotion when talking about their child during a speech sample. Treatment gains were maintained up to 15 and 9 weeks post-intervention respectively. The results of these studies suggest that psychosocial PT is a valuable treatment option for children with ADHD, particularly when it is delivered in a timely way (i.e. early) and when intervention is informed by the key aetiological theories of ADHD (Daley, 2006).

Despite the efficacy of PT programmes, such as NFPP in reducing child ADHD symptoms, the associated cost of delivering PT as part of routine clinical services is likely to be significant due to therapist training and on-going supervision (Foster, Johnson-Shelton, & Taylor, 2007). Furthermore, parents may experience barriers, such as work schedules, or lack of childcare provision, which may prevent them from engaging with the programme. For example, Spoth and Redmond (1995) found that potential barriers such as needing to arrange childcare, and having to travel to group meetings were negatively related to inclination to enroll in a parenting intervention. Another study with a sample of

parents who refused participation in a family skills preventative intervention found that lack of time was the most commonly cited reason for refusal (Spoth & Redmond, 1993b). Additional barriers can include residing in rural and remote areas (Connell, Sanders, & Markie-Dadds, 1997) where access to regular services is limited. The presence of these barriers to treatment participation are proposed to interfere with remaining in, adhering to, and benefiting from treatment, and may be best conceptualised within the *'barriers-to-treatment'* model (Kazdin, 1996a). The barriers to treatment model begins with the principle that for many families, attending treatment is a burden i.e. another demand and potential source of stress. As well as impacting upon treatment attendance, barriers have also been shown to impact upon therapeutic change. Kazdin and Wassell (2000) reported that as the level of perceived barriers increased among families participating in a PT intervention, the amount of therapeutic change and the proportion of children who made a marked change decreased. Furthermore, parents' perceptions of the relevance and demands associated with treatment were salient dimensions contributing to the relation between perceived barriers and therapeutic change. Clearly then, providing treatments that can a) decrease barriers to attending PT, such as travel to and from clinics, and arranging childcare, and b) are acceptable to parents should be of high priority.

Self-help PT has been proposed as an alternative delivery format in order to increase access to evidence-based treatments in this population, whilst removing barriers to treatment participation. The evidence-base supporting self-

help PT programmes for children with behavioural problems, including ADHD will be discussed in the next chapter.

Chapter Summary

This chapter provided an overview of childhood ADHD, including information relating to classification, prevalence, developmental course, and co-morbidity. Research on the neuropsychological underpinnings of the disorder, as well as the genetics of ADHD and gene-environment interactions was then presented. Interventions for ADHD were touched upon briefly. The role of parenting style, parenting cognitions, and parental ADHD in the disorder was discussed. The chapter concluded with a discussion of the evidence-base supporting PT in the treatment of ADHD. Limitations to the current mode of delivery of PT—individual- and group-based therapist-led programmes—were put forth, and self-help PT was introduced briefly as an alternative delivery format for increasing access to evidence-based PT programmes. The next chapter will focus on the efficacy of self-help PT for childhood behavioural problems, including ADHD.

Structure of the thesis

This thesis is structured as a series of papers, which follow a logical sequence: a literature review paper, followed by two empirically based papers that evaluate the efficacy of the self-help version of the New Forest Parent Training programme (NFPP-SH; Laver-Bradbury, Thompson, Weeks, Daley, & Sonuga-Barke, 2010) for families of clinically referred children with ADHD symptoms, and a

qualitative paper investigating the acceptability of self-help PT as a mode of intervention delivery.

The aims of this thesis are a) to evaluate the short-term efficacy of the NFPP-SH for children with ADHD symptoms (*Chapter 3*), b) investigate parents' perceptions of the acceptability of the NFPP-SH (*Chapter 4*), and c) examine predictors of intervention-related change following NFPP-SH (*Chapter 5*).

Chapter 2: Literature review

The first paper (*chapter 2*) critically reviews the current evidence-base supporting the efficacy of self-help PT for children with behavioural problems. Two modes of self-help intervention delivery are reviewed, namely, bibliotherapy (written self-help materials), and multi-media interventions. The chapter examines the strength of the current evidence-base in terms of methodological quality, and suggests a number of future research directions for the field of self-help PT. The chapter concludes by stating that there is good evidence to support the efficacy of self-help PT in improving child behaviour, and self-help PT may be potentially useful clinically.

Chapter 3: Study 1

Parent Training (PT) is an empirically supported treatment for children with ADHD (Pelham, Wheeler, & Chronis, 1998; Fabiano et al. 2009) and is recommended by the National Institute for Health and Clinical Excellence (NICE) as a first-line treatment in the management of pre-school, and school-age children with moderate symptoms of ADHD (NICE, 2009). However, it is widely

acknowledged that delivering intensive, therapist-led programmes as part of routine care is costly for under-resourced services (Foster et al, 2007). Furthermore, parents partaking in PT, whether group-based or individual therapist-led, are faced with multiple barriers, such as lack of childcare provision, transport difficulties if attending clinics, and inflexible work schedules.

In light of these factors, the first empirical study was designed to evaluate the short-term efficacy of a self-help PT intervention—the New Forest Parent Training Programme, Self-help (NFPP-SH) for clinically referred children with ADHD symptoms. The therapist-led version of the NFPP has been associated with positive outcome in preschool samples of children with ADHD (Sonuga-Barke et al, 2001; Thompson et al, 2009). The current evaluation adopted an intention-to-treat randomized controlled trial design. Forty-three families were randomly allocated to either receive NFPP-SH or to a waiting list control (WLC) group. Child ADHD symptoms and parental wellbeing, and competence were assessed at baseline and at follow-up, with the NFPP-SH being delivered in the interim. The outcomes of the intervention group were compared with those of the WLC group using Analysis of Covariance. Clinical significance of intervention effects was also investigated. The findings are discussed in relation to the literature, and methodological considerations are outlined.

Chapter 4: Study 2

Despite the efficacy of self-help PT, a number of studies report a significantly higher drop out rate (Nicholson & Sanders, 1999; Morawska, 2006;

Sanders et al, 2000; Webster-Stratton, Kolpacoff, & Hollinsworth, 1988), and lower levels of parent satisfaction (Markie-Dadds & Sanders 2006a; Sanders et al, 2000) following self-help treatment, compared with treatment with therapist input. To our knowledge, an in-depth study assessing parents' perceptions of self-help PT had not been undertaken. This was considered a valuable research area due to the paucity of studies, and also given the implications of parents' views of the acceptability of treatment on engagement with, and adherence to parenting interventions (Kadin & Wassell, 2000). It was therefore decided to conduct interviews with five mothers who had recently undergone NFPP-SH. Interviews were analysed using a grounded theory approach, and six categories relating to the advantages and acceptability of NFPP-SH, as well as challenges and barriers to implementing the intervention, emerged from the interview data.

Chapter 5: Study 3

Within the field of PT intervention outcome research, there is currently an emphasis on identifying particular subgroups of families with a particularly good (or poor) response to treatment. There is a paucity of studies examining predictors, and moderators of self-help PT outcome in the literature. As a result, study 3 examined potential predictors of NFPP-SH intervention outcome with families who had been randomly allocated to the intervention group in study 1 (*chapter 3*). Child and parent predictors were chosen on the basis of previous research with conduct problem children due to the high co-morbidity of ADHD with conduct problems, and from the few studies that have examined predictor

and moderator variables in ADHD samples (Sonuga-Barke et al, 2002; van den Hoofdakker et al, 2010).

The literature review paper (*chapter 2*) is currently under review for publication to *Child: Care, Health and Development.* The first empirical study (*chapter 3*) has been submitted for publication to the *Behavior Research and Therapy*. Finally, the qualitative study (*chapter 4*) has also been submitted for publication to *Psychology and Psychotherapy: Theory, Research and Practice.*

The general discussion (chapter 6) summarises the findings from each study in relation to the current literature. Methodological limitations of the thesis are presented accordingly, as well as clinical implications following from the results presented herein. Finally, future directions are outlined.

CHAPTER 2

Self-help Parenting Interventions for Childhood Behaviour Problems: A Review of the Evidence[1]

[1] This review formed the basis of a paper published in Child: Care, Health and Development: O'Brien, M., & Daley, D. (2011). Self-help Parenting Interventions for Childhood Behaviour Problems: A Review of the Evidence.

Abstract

Background: The use of Self-help interventions for parents of children with behaviour problems is becoming more prevalent. This review critically evaluated the evidence supporting the efficacy of such programmes for children with behaviour problems.

Methods: Using a systematic literature search, two modes of delivery were evaluated, namely bibliotherapy and multi-media. Programmes that included minimal therapist support were also included.

Results: Overall, there is good evidence supporting the efficacy of self-help programmes in improving child behaviour, over the short and longer-term. Self-help programmes led to outcomes similar to those achieved with more intensive therapist input. Including minimal levels of therapist support in addition to self-help materials enhances child and parent outcomes. Parents view self-help favourably but significantly less so than programmes including some form of therapist input.

Conclusions: The future directions for self-help parent programmes include the need for longer-term follow-ups, the identification of moderators of outcome, and economic evaluations of self-help programmes.

This review examines the efficacy of self-help parent training (PT) programmes for children with behaviour disorders. Typically, PT is delivered within a group or individual basis with both modes of delivery including therapist-led discussions of parenting skills. A number of evidence-based programmes follow this format, most notably the Incredible Years (Webster-Stratton, 1998), Triple-P (Sanders et al, 2002), and New Forest Parent Training Programme (Thompson et al. 2009). There is substantial evidence that these programmes produce immediate improvements in parenting practices and child behaviour post treatment (Reid et al, 2004) and in the longer-term (Sanders et al, 2007; Webster-Stratton, 1990). A number of trials also report improvements in maternal wellbeing (Sonuga-Barke et al., 2001), stress and depression (Hutchings et al., 2007), and reductions in parental conflict (Morawska & Sanders, 2006). Consequently, group-based PT is recommended by the National Institute for Health and Clinical Excellence (NICE) in the management of children with conduct disorder (NICE, 2006), pre-school children with ADHD, and school-age children with moderate symptoms of ADHD (NICE, 2008).

Despite the evidence supporting group-based PT for childhood behaviour disorders, there are a number of factors that limit its utility. These programmes are resource and cost intensive, and require extensive therapist time through training and supervision (Foster, Johnson-Shelton & Taylor 2007). Additionally logistical barriers, such as lack of childcare, transport costs, and work schedules, may prevent families accessing sessions. Time demands and scheduling conflicts are often primary barriers to programme participation (Spoth et al, 1996), and

contribute to treatment dropout (Kazdin et al, 1997). Such barriers are compounded in rural locations, where clinics are less accessible (Connell et al, 1997). Optimizing parental engagement in treatment may be accomplished through utilizing more flexible modes of delivery (Miller & Prinz, 1990), where evidence-based aspects of a programme are retained while eliminating potential barriers to engagement. Self-help PT represents one potentially efficacious method of providing intervention for families.

This review examines the evidence supporting the efficacy of self-help parent programmes, for children with behaviour disorders. Self-help programmes that include brief therapist contact will also be examined to clarify the role of therapist assistance. Two previous overviews have been published in this area. Elgar and McGrath's (2003) article focused on self-help treatments for children and adolescents with a variety of mental health (depression, and self-harm) and physical complaints (headache, and nocturnal enuresis) and did not include many of the articles in this review. A Cochrane review (Montgomery et al, 2006) also examined self-help parent programmes for children with behaviour problems. However, it included studies up to 2005 and limited its comparison of self-help intervention to no treatment groups making it difficult to draw conclusions about the relative efficacy of self-help treatment compared with group-based, therapist-delivered treatments.

Defining Self-help Interventions

Self-help interventions exist along a continuum from entirely self-administered to those that include the addition of brief therapist assistance, usually via the telephone. Self-help treatment was defined as any therapeutic intervention that was presented either in written (bibliotherapy) or multi-media format (DVD, CD-Rom, Internet, or TV), and designed to be implemented by the parent(s). Self-help intervention with minimal therapist contact was defined using the same parameters but with the inclusion of brief consultations (< 30 minutes per week) with a trained therapist. Typically, the consultations involved the therapist a) monitoring parents progress, b) briefly discussing the target child's behaviour problems and c) prompting parents to move onto the next phase of intervention.

Method

Search strategy

A systematic literature search was conducted to identify English Language evaluations of self-help parent programmes in the treatment of childhood behaviour disorders. Both PsycINFO and Web of Knowledge were searched for relevant studies published in peer-review journals and conducted between 1960 and 2009. The following search terms were used: self-directed, self-administered, self-help, telephone intervention, bibliotherapy, parenting intervention, parent training, and children. The outcomes of the searches were cross-referenced against authors' websites, and reference lists of each paper were trawled for

additional information. Two hundred and one abstracts were identified by these search terms.

Selecting relevant manuscripts

Studies were excluded if they met one of six exclusions criteria: i) not published in English language, ii) not published in a peer reviewed journal, iii) sample age was not in the range of 3 – 12 years, iv) samples which recruited children with a learning disability (IQ < 70), v) the sample did not show evidence of behavioural difficulties, with a minimum criteria being parental concern about the child's behaviour, and vi) literature review papers. Full manuscripts were obtained for the articles that met inclusion criteria as well as for articles with vague titles or abstracts. Eighteen manuscripts were retrieved once exclusion criteria were applied but five of these papers were subsequently excluded for the following reasons: not published in English language (N=2); review paper (N=1); and a toddler sample (children < 2.5 years; N=2). A final sample of 13 studies was reviewed. To avoid selection bias, screening and selection procedures were independently conducted by two reviewers (D.D and M.O'B) and final decisions made by agreement. Observed agreement between reviewers was high at 94%.

Data extraction and coding

Both reviewers independently read all selected studies and collated the following information: i) study design, ii) intervention, iii) criteria and recruitment, iv) level of therapist contact, v) child age, vi) timing of measurements, vii) outcome measures, viii) analysis strategy, ix) intervention effects, and x) clinical

significance. See Table 1 for details of studies evaluating bibliotherapy, and Table 2 for details of studies evaluating multi-media interventions.

Quality of included studies

Guided by the Cochrane Effective Practice and Organisation of Care Review Group (EPOC), quality criteria we selected studies with data on baseline measurement, at least one follow-up point, blinded outcome assessment, reliability of primary outcome measures and clear design involving adequate control.

Data analysis

Extracted data were recorded and evidence tables were produced to summarize the information extracted from articles (see Tables 1 and 2). Due to variations in the types of treatment and outcome measures, a formal meta-analysis of individual study effect sizes was not undertaken.

Outcomes of Clinical Trials

Bibliotherapy

Bibliotherapy refers to written materials, which are provided in the form of an instruction manual developed for the purpose of treating a specific problem area. They typically include information about the problem (psycho-education), key strategies to successfully manage the problem, and homework assignments (Sanders et al., 2000).

Markie-Dadds and Sanders (2006b) found their 10-session individual self-help Triple-P intervention, using written materials alone resulted in significantly fewer child behaviour problems, greater parenting competence and less use of dysfunctional discipline strategies compared to a waitlist control group, in a sample of 2-5 year old children identified as at-risk of developing conduct disorder on the basis of parental ratings of behaviour problems exceeding the clinical range on the Eyberg Child Behavior Inventory (ECBI; Robinson et al, 1980). Furthermore, 30% of children in the self-help condition showed clinically reliable change in their behaviour compared with none of the children in the control group. Positive treatment gains achieved at post-intervention were maintained at 6-month follow-up.

Whilst self-help parent training that is entirely self-administered can positively impact on child and parent behaviours, a number of controlled trials have examined whether providing parents with minimal levels of therapist support in addition to written self-help materials enhances outcomes (Connell et al, 1997). Markie-Dadds and Sanders (2006a) compared a self-help only intervention with self-help plus minimal therapist input via the telephone (average 20 minutes per week) for parents of children with early onset conduct problems, defined as clinically significant child behaviour problems on mother-rated ECBI (Robinson et al,1980), and a general concern regarding child behaviour. Families who received self-help plus therapist input showed the most beneficial intervention effects, followed in turn by the self-help only group, when compared against waitlist control (WL) immediately post-intervention. Additionally, 69% of

children in the self help plus and 60% of children in the self-help only group showed clinically significant change in their behaviour compared with 0% of controls. At 6-month follow-up, the majority of treatment gains were maintained. However the self-help alone group demonstrated continued improvements in mother-reported child behaviour and parenting style, while mothers in the self-help plus group reported an increased use of dysfunctional parenting strategies, making the advantages of self-help plus difficult to evaluate. Other research however supports the addition of minimal levels of practitioner-assisted support (< 20 minutes per week) on levels of child disruptive behaviour as well as parental and relationship adjustment immediately post-treatment, and over the longer-term, when compared with parents who receive self-help alone (Morawska & Sanders, 2006). The implications of this research are of particular importance as they demonstrate that minimal levels of intervention can lead to positive changes in child behaviour problems.

A recent independent evaluation of individual written self-help Triple P plus minimal therapist input via weekly telephone consultations (average duration of 15 minutes per week) was conducted by Hahlweg and colleagues (Hahlweg, et al 2008), for parents of 3-6 year old children from German-speaking families. Recruitment for the clinical trial occurred within community pre-school settings, with only a small percentage of children (16%) displaying clinically relevant levels of externalizing behaviour on parent-reported Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000). Mothers reported significant short (i.e. immediately post-intervention) and long-term (i.e. 6-months post-intervention)

effects of the self-help programme on reducing externalizing child behaviour problems and improving parenting style, compared with waiting-list control mothers (WLC). However, self-help intervention did not lead to any significant improvements in maternal depression, general life satisfaction, or marital quality. These findings provide additional independent support for the use of self-help Triple-P with minimal therapist input for parents of pre- and school-age children, although positive treatment effects were limited to child behaviour and parenting style measures, with no beneficial effects upon parental personal adjustment or relationship quality. Furthermore, children in this study showed minimal levels of clinically significant behavioural problems making it unclear whether such beneficial effects would be replicated in clinical samples, which are typically characterised by more severe levels of behaviour problems. A dose-outcome analysis also revealed that the number of chapters read significantly correlated with the within group effect size (ES; indicates the net improvement of self-help over the control condition) of improvements in dysfunctional parenting, but not child behaviour, suggesting that the more parents engaged with and implemented the advice they read in the self-help booklet, the greater the improvement in their parenting style, although this failed to lead to improvements in child behaviour according to parent report.

The efficacy of an entirely self-administered parent programme compared to, two therapist-led programmes for children with early onset conduct problems, was evaluated in a clinical trial by Sanders and colleagues (2000). As well as recruiting children with clinical levels of behaviour problems on mother-rated

ECBI (Eyberg & Ross, 1978), Sanders and colleagues targeted families who reported at least one family adversity factor, such as maternal depression, relationship conflict, low family income, or single parenthood. All three treatment programmes were empirically supported on an individual basis (Bor et al, 2002; Connell et al, 1997; Markie-Dadds & Sanders, 2006a), however, this study compared the relative efficacy of self-help (10 session self-directed behavioural family intervention, SDBFI) and two variants of a therapist-led programme; standard (10 hours of standard behavioural family intervention, SBFI) and enhanced (18 hours of enhanced behavioural family intervention, EBFI) intervention at post-treatment and 1 year (Sanders et al, 2000) and 3-year follow-up (Sanders et al, 2007).

A tiered effect of intervention efficacy was found, with the enhanced, standard, and self-help programmes respectively showing treatment gains compared with the waiting list control (WL) group. Families who received self-help intervention did show significant positive changes on a number of mother-reported child behaviour outcome measures, although this was not corroborated by independent observations of child behaviour. Additionally, mothers in the self-help condition reported a significant increase in parental competence, compared with mothers in the WL condition. However, the non-significant differences found for the remaining child and parent outcome measures, including father reports of child problem behaviour, parenting competence, parenting style, and parental personal and marital adjustment makes the efficacy of the self-help group less certain. Furthermore, the lack of congruence between mother-reported and

independently observed child behaviour change post-intervention weakens the conclusion that self-help was an effective intervention over the short-term.

However, over the longer-term, the self-help group achieved similar levels of improvement as the therapist-led groups on child and parent outcome measures. Interestingly, only children in the self-help group showed a significant decrease in independently observed negative behaviour from post-intervention to 1-year follow-up. At 1-year follow-up, the percentage of children in the non-clinic range (on mother-reported ECBI) was comparable across all treatment groups, suggesting that children in the self-help group made improvements commensurate with those in both therapist-delivered groups. Similarly, any treatment gains made by families in the self-help group were maintained or showed further improvement at 3-year follow-up and were not significantly different from the therapist-led groups. This finding is consistent with that of Markie-Dadds and Sanders (2006a), who found that reductions in mother-reported child disruptive behaviour produced with self-help intervention were not significantly different to those achieved with therapist-delivered interventions at 6-month follow-up. These findings suggest that changes in child and parental behaviour may occur more gradually following self-help intervention, compared with immediate and rapid short-term changes observed following therapist-delivered intervention. It is likely that therapist input may motivate and encourage parents to work through a programme week-by-week, whereas parents completing a self-help programme may take longer consequently extending the duration of the programme and reducing the speed at which positive outcomes are evident.

Table 1. Empirical studies of self-help parent training (PT) – Bibliotherapy

Citation	Design and intervention	Criteria and recruitment	Level of contact	Child age range in months (mean) [a]	Timing of measurement	Outcome measures	Analysis strategy	Intervention effects	Clinical significance
Connell et al (1997)	RCT – Therapist-assisted 10-week Self-help (SH+T; n=12) vs. WLC (n=11)	Community sample. Parent-reported child behaviour in clinical range on ECBI Intensity. Parents residing in a rural area.	Telephone consultation with a trained therapist (M=20 minutes per week), and written parenting workbook.	24 to 72 months (M=49 months)	Pre-post intervention, and 4-months post-intervention.	*Child Outcomes* – Parent-reported ECBI and PDRC. *Parent Outcomes* – parent-reported PSOC, PS, and DASS.	Per protocol	*Child Outcomes* – SH+T<WLC on ECBI Intensity** & Problem**, & PDRC**. *Parent Outcomes* – SH+T>WLC on PSOC Efficacy* & Satisfaction**. SH+T<WLC PS Total** & DASS Total* *Long-term intervention effects* – Improvements maintained at 4-month follow-up, except for > on ECBI Problem** for SH+T.	67% SH+T children showed clinically reliable improvement in behaviour (<127 on ECBI Intensity scale) compared with 0% of WLC. 57% of SH+T children remained outside the clinical range at 4-month follow-up.
Markie-Dadds & Sanders (2006a)	RCT –10-week Enhanced Self-help (ESH; n=14)) vs. 10-week Self-help (SH; n=15) vs. WLC (n=12).	Community sample. Parent-reported child behaviour in clinical range on ECBI.	ESH: written workbook and weekly telephone consultation with trained therapist (M=20 minutes), SH: written parenting workbook only.	24 to 72 months. EHS: (M=47 months), SH: (M=47 months)	Pre-post intervention, and 6-months post-intervention.	*Child Outcomes* – Parent-reported ECBI and PDRC. *Parent Outcomes* – parent-reported PSOC, PS, DASS, and PPC.	Per protocol	*Child Outcomes* – ESH<SH on ECBI Intensity** & Problem*, & PDRC Mean Target[b]*. SH<WLC on ECBI Intensity** & Problem**, & PDRC Mean Problem[c]**. *Parent Outcomes* – ESH>SH PSOC Efficacy** & < PS Laxness**. No differences on PS and PSOC between SH and WLC. No treatment effects on DASS and PPC. *Long-term intervention effects* – SH < on ECBI Intensity* and Problem*. EHS > on PS Laxness** & Over-reactivity**. SH < in PS Over-reactivity*.	59% ESH and 60% SH children showed clinically reliable improvement in behaviour (<127 on ECBI Intensity scale) compared with 0% of WLC. Improvements maintained at 6-month follow-up.

Hahlweg et al (2008)	RCT - Therapist-assisted 10-week Self-help (SH+T; *n*=37) vs. WLC (*n*=32).	Community sample. No exclusionary criteria.	Telephone consultation with a therapist (*M*=15 minutes per week), and written parenting workbook.	36 to 72 months (*M*=42 months).	Pre-post intervention, and 6 months post-intervention.	*Child Outcomes* - Parent-reported CBCL, SDQ, and PPQ. *Parent Outcomes* – parent-reported PS, GLSQ, CES-D, and ADAS.	Per protocol	*Child Outcomes* – SH+T<WLC on CBCL Externalizing** and Internalizing†, & SDQ**. *Parent Outcomes* – SH+T<WLC PS Total***, Over-reactivity***, Laxness*, and Verbosity***, & PPQ*. No effects for GLSQ, CES-D, or ADAS. *Long-term intervention effects* - Improvements maintained at 6-month follow-up.	NR
Markie-Dadds & Sanders (2006b)	RCT – 10-week Self-help (SH, *n*=32) vs. WLC (*n*=31).	Community sample. Parent-reported child behaviour in clinical range on ECBI.	Written parenting workbook.	24 to 60 months (*M*=43 months).	Pre-post intervention, and 6-months post-intervention.	*Child Outcomes* – Parent-reported ECBI and PDRC. *Parent Outcomes* – Parent-reported PSOC, PS, DASS, and PPC.	Per protocol and ITT	*Child Outcomes* – SH<WLC in ECBI Intensity** & Problem**, & PDRC Mean Problem** and Total Target***. ITT analysis produced the same pattern of results. *Parent Outcomes* – SH>WLC PSOC Efficacy* & Satisfaction***, and < in PS Over-reactivity**. No treatment effects on DASS, or PPC. ITT analysis produced the same pattern of results. *Long-term intervention effects* – Improvements maintained at 6-month follow-up.	30% SH children showed clinically reliable improvement in behaviour (<127 ECBI Intensity scale) compared with 0% WLC. 23% SH children remained outside the clinical range at 6-month follow-up.
Sanders et al (2000) & Sanders et al	RCT – 10-session Self-help (SH, *n*=75) vs. therapist-	Community sample. Parent-reported child behaviour in clinical range on	SH: written parenting workbook, SBFI: written parenting	36 to 48 months. SH: (*M*=41 months), SBFI:	Pre-post intervention. 1- and 3-years post-intervention	*Child Outcomes* - Parent-reported ECBI, PDRC, and observation of parent-child	Per protocol	*Child Outcomes* – EBFI<SH on FOS-R negative behaviour*, & PDRC*. SBFI<SH on PDRC*. SH<WLC on ECBI*, & PDRC*.	64% EBFI children showed clinically reliable improvement in behaviour (<127 ECBI Intensity) compared with 49%

Table 1 cont…

(2007)	assisted Standard Family Behavioral Intervention (SBFI, *n*=77) vs. therapist-assisted Enhanced Family Behavioral Intervention (EBFI, *n*=76) vs. WLC.	intensity or problem scale of ECBI. Presence of 1> family adversity factor.	workbook + 10 hours therapist input, EBFI: written parenting workbook + 18 hours therapist input + tailored partner support.	(*M*=40 months), EBFI (*M*=41 months).	(Sanders et al, 2007).	behaviour (FOS-R). *Parent Outcomes* – Parent-reported BDI, CAP, PS, PSOC, PPC, ADAS, and DASS	*Parent Outcomes* – EBFI<SH on PS***, & > on PSOC*. SBFI<SH on PS*, & > PSOC*. SH>WLC on PSOC*. No treatment effects on ADAS, PPC, or DASS. *Long-term intervention effects* – *1-year follow-up* – Improvements maintained at 1-year follow-up. SH children showed < in FOS-R* negative behaviour. *3-year follow-up – (Sanders et al, 2007).* Improvements maintained at 3-year follow-up. No significant differences between treatment conditions.	SBFI, 47% SH, and 24% WLC. At 1-year follow-up, there were no significant differences in reliable change across conditions. NR

Note. SH+T = Self-help plus therapist-assistance; SH = Self-help; RCT = Randomized controlled trial; WLC = Waiting list control; ECBI = Eyberg Child Behavior Inventory; PDRC = Parent Daily Report Checklist; PSOC = Parenting Sense of Competence; PS = Parenting Scale; DASS = Depression-Anxiety-Stress Scale; PPC = Parent Problem Checklist; CBCL = Child Behavior Checklist; SDQ = Strengths and Difficulties Questionnaire, PPQ = Positive Parenting Questionnaire; GLSQ = General Life Satisfaction Questionnaire; CES-D = Center for Epidemiological Studies – Depression Scale; ADAS = Abbreviated Dyadic Adjustment Scale; FOS-R = Revised Family Observation Schedule; BDI = Beck Depression Inventory; CAP = Child Abuse Potential Inventory.

ITT – Intent to treat analysis (last observation carried forward)
NR – Not reported

[a] Mean child age reported for treatment groups only
[b] Mean Target PDRC – the sum of all behaviours previously identified by the parent as problematic.
[c] Mean Problem PDRC – the sum of all occurences of problem behaviours for the week.

* $p < .05$, ** $p < .01$, $p <. 001$***, †marginal

Table 1 cont.

Multi-media Self-Help Parent Programmes

A number of trials have examined the efficacy of multi-media assisted self-help programmes in reducing child behaviour problems, including videotape (Webster-Stratton, et al, 1988, 1989; Webster-Stratton, 1992), and television (Sanders at al, 2000; Sanders et al, 2008). Commensurate with bibliotherapy, multi-media assisted interventions overcome most barriers to intervention, and can easily be disseminated to a large audience.

Webster-Stratton and colleagues (1988, 1989) conducted a randomized trial to examine short- and long-term outcomes associated with three parent training approaches all based upon the Incredible Years (IY) Parent Training Programme for 3 - 8 year old conduct problem children, defined as having a clinically significant number of behaviour problems according to parent-rated ECBI (Eyberg & Ross, 1978). Parents were randomly allocated to self-help videotape-modelling or one of two therapist-led programmes; group discussion with videotape modelling (GDVM), or group discussion alone (GD), and a waitlist control group (WL). Videotape modelling involved a short presentation of a parent-child vignette highlighting positive parenting strategies. Parents in all three conditions attended a weekly group, for 10-12 weeks. Parents in the self-help condition were provided with videotapes and received no therapist input for the duration of the treatment. Average weekly sessions lasted one hour. Similarly, parents in the GDVM condition were provided with videotape-modelling but in addition received therapist-led discussion of parenting strategies viewed in the vignettes. Finally, parents in the GD condition did not receive videotape-

modelling but were provided with therapist-led discussion of the same topics covered in the GDVM condition. Weekly sessions for both therapist-led programmes lasted two hours.

Results demonstrated that parents in both self-help and therapist-led treatments showed significant positive changes in parent-reported and independently observed child behaviour compared with the WL at post-intervention. Improvements in child behaviour were corroborated by teacher reports. Furthermore, there were significant improvements in parent-child interaction in all three treatment conditions compared with the WL. Overall, there were few differences between treatment groups on most outcome measures, although differences observed consistently favoured the GDVM condition. All significant improvements reported post-intervention were maintained at 1-year follow-up (Webster-Stratton et al, 1989). Webster-Stratton (1990) reported similar improvements in child behaviour and parent-child interaction in a further clinical trial of 43 three to eight-year old conduct-problem children scoring within the clinical range on parent-rated ECBI. However, a recent small-scale study employing a single case experimental design reported no positive changes in parenting practices following self-help IY in a sample of school-aged children with a clinical diagnosis of combined-type ADHD. Parent-reported changes in child behaviour were more positive, with children showing improvements in social skills, academic functioning, and internalizing behaviour during the intervention phase of the study (Walcott et al, 2009).

A further independent evaluation of a 12-session therapist-led video-based IY parent programme presented in either individual or group-based format, compared with written self-help alone was conducted by Lavigne and colleagues (2008), with parents of 3-6 year old children with a clinical diagnosis of Oppositional Defiant Disorder (ODD). Results showed a significant improvement over both the short (i.e. immediately post-intervention) and long-term (i.e. 12-month post-intervention) on parent-reported measures of child behaviour problems across all treatment groups. Importantly, there were no significant differences between treatment groups, suggesting that self-help was as effective as therapist-led treatment when delivered within a primary healthcare setting. A dose-outcome analysis was also examined and findings showed that attending seven sessions of therapist-led treatment was the critical dose level at which significant gains in parent-reported ECBI child behaviour could be detected. This result is particularly important as it demonstrates that unless parents attend a relatively high number of sessions (i.e. 7 out of a possible 12 sessions), self-help bibliotherapy may provide treatment gains comparable to more intensive therapist-led treatment for clinical populations. However, the absence of a control group makes it more difficult to determine the relative efficacy of self-help compared with no treatment.

Delivering evidence-based parent programmes via the medium of large-scale media has also been evaluated. In a recent controlled trial (Sanders et al, 2008), 454 parents were randomized to a standard condition whereby they viewed a six-episode television series documenting five families undergoing therapist-led

group Triple-P, or an enhanced condition where in addition to viewing, parents received a self-directed workbook and had access to e-mail support. Given that the trial was employed as part of a public health approach to providing parenting support, there were no strict inclusion criteria regarding baseline levels of child behaviour problems, although the mean number of behaviour problems according to parent-rated ECBI (Robinson et al, 1980) suggested that children were displaying a clinically significant number of problem behaviours. Additionally, a small number of children (17% of the sample) were in regular contact with a professional regarding emotional/behavioural problems. The sample also included children with varying physical (e.g. hearing and/or visual impairments) and intellectual impairments (e.g. developmental delay). Parents in both conditions reported significant improvements in child disruptive behaviour, dysfunctional parenting practices, and parental affect. Treatment effects were greatest for parents in the enhanced condition who in addition, reported decreased partner conflict over parenting and higher overall levels of programme satisfaction. Improvements in both groups were maintained at 6-month follow-up. Furthermore, parents of children with the most severe problem behaviour and those with higher levels of socio-economic disadvantage were more likely to engage with the programme and remain engaged at 6-month follow-up (Calam et al, 2008). These results are particularly important as they demonstrate disadvantaged parents can benefit from self-help intervention that is delivered via a novel format, such as the media.

Table 2. Empirical studies of self-help parent training (PT) – Multi-media

Citation	Design and intervention	Criteria and recruitment	Level of contact	Child age range in months (mean) [a]	Timing of measurement	Outcome measures	Analysis strategy	Intervention effects	Clinical significance
Webster-Stratton et al (1988, 1989)	RCT – Self-help videotape modeling (SHVM) vs. therapist group discussion & videotape modeling (GDVM) vs. therapist group discussion (GD) vs. WLC.	144 conduct-problem children. Self-referred (43%) and professionally referred (57%). Parent-reported child behaviour in clinical range on ECBI Problem scale.	SHVM: 10-12 weekly 1-hour group sessions with videotapes only. GDVM: 10-12 weekly 2-hour group sessions with videotapes + therapist-led discussion. GD: 10-12 weekly 2-hour group sessions with therapist-led discussion only.	36 to 96 months (M=54 months) [b]	Pre-post intervention	*Child Outcomes* – Parent-reported CBCL, ECBI, PDR, and behavioural observation of parent-child interaction (DPICS). *Parent Outcomes* – Parent-reported PSI.	Per protocol	*Child Outcomes* – SHVM<WLC ECBI Intensity*** & Problem***; CBCL***; PDR negative behaviour***; & > pro-social behaviour**. No differences between treatment groups. SHVM<WLC trend in DPICS child deviance†. No differences in observed child deviance between treatment groups. *Parent Outcomes* - Only GDVM<WLC PSI**. SHVM<WLC DPICS critical statements***, no-opportunity commands*, and > positive affect**. *Long-term intervention effects – 1-year follow-up (Webster-Stratton et al, 1989).* Improvements maintained at 1-year follow-up.	NR
Webster-Stratton (1990)	RCT – Self-help videotape modeling (SHVM) vs. therapist-assisted self-help videotape modeling (SHVM+T) vs. WLC	43 conduct-problem children. Parent-reported child behaviour within the clinical range on ECBI Problem scale.	SHVM: 10 weekly 1-hour group sessions with videotapes only. SHVM+T: 10 weekly 1-hour group sessions with videotapes + 2	36 to 96 months (M=61 months) [b]	Pre-post intervention	*Child Outcomes* - Parent-reported CBCL, ECBI, PDR, and independent behavioural observation of parent-child interaction (DPICS).	Per protocol	*Child Outcomes* – SHVM<WLC ECBI Intensity**. No improvements on CBCL or PDR. No differences between treatment groups on child behaviour. SHVM+T<WLC DPICS child deviance** SHVM+T<SHVM DPICS child deviance*. *Parent Outcomes* – SHVM<WLC PSI*. SHVM+T<WLC PSI*. No differences between	67%[a] of treatment children showed clinically significant improvements in behaviour (<63 CBCL) at 1-year follow-up.

			individual 1-hour appointments with a therapist + telephone consultation with the therapist.			*Parent Outcomes* – Parent-reported PSI.		treatment groups on PSI. SHVM>WLC DPICS praise*, & positive affect*. SHVM+T>WLC DPICS positive affect*. No differences between treatment groups on DPICS.	
Lavigne et al (2008)	RCT – Self-help (SH, *n*=31) vs. therapist-led group interventions with videotape modeling (Nurse-led Group, *n*=49 vs. Psychologist-led Group, *n*=37).	Parent-reported child behaviour at or above the 90th percentile on CBCL. 117 children DSM-IV diagnosis of ODD	SH: Written parenting workbook only. Therapist-led Groups: Small group (2-3 parents), or individual, 12 weekly 1-hour, or 6 weekly 2-hour sessions, with videotape modeling.	36 to 83 months (*M*=54 months) [b]	Pre-post intervention, and 12-months post-intervention.	*Child Outcomes* – Parent-reported ECBI, CBCL, and observation of parent-child interaction. *Parent Outcomes* - NR	ITT	*Child Outcomes* – All three treatment groups showed < ECBI Intensity *** & CBCL*** post-intervention and 12-month follow-up. No improvements in observed child behaviour across treatment groups post-intervention or 12-month follow-up.	17% of treatment children showed clinically significant improvements in behaviour (<129 ECBI Intensity), and 23% at 12-month follow-up. 35% treatment children showed clinically significant improvement in behaviour (<63 CBCL), and 48% at 12-month follow-up.
Sanders et al (2008)	RCT – Standard Media Self-help (SH, *n*=231) vs. Enhanced Media Self-help (ESH, *n*=222).	Non-clinical sample. Child between 24 and 108 months, and parent concern over child behaviour (not	SH: Viewed a six-episode TV series of 5 families undergoing therapist-led group Triple-	24 to 108 months. SH: *M*=65 months. ESH: *M*=66 months.	Pre-post intervention, and 6-month post-intervention.	*Child Outcomes* – Parent-reported ECBI. *Parent Outcomes* – Parent-reported	Per protocol and ITT	*Child Outcomes* – ESH<SH ECBI Problem*. *Parent Outcomes* – ESH<SH PS*, PPC*, & PAI approached significance (.08). No group differences on DASS, RQI, or PTC. Improvements maintained at 6-	NR

Table 2 cont…

		assessed in a standardized way).	P + parenting tip sheets. ESH: Six episode TV series, + 10-week written self-help, parenting tip sheets, audio/video streaming of parenting messages, and e-mail.			PS, PPC, PAI, PTC, RQI, and DASS		month follow-up. No group differences emerged. *ITT Analysis* – No group differences post-intervention or 6-month follow-up, except for ECBI Problem* where SH>ESH at 6-month follow-up.	
Walcott et al (2009)	Replicated A-B design across four mother-child dyads.	Clinical sample with DSM-IV diagnosis of ADHD. Child between 84 and 144 months, and on medication for ADHD.	9-week self-help videotape modeling + written parenting workbook + six weekly reminder telephone calls.	84 to 144 months (*M*=111 months)	Pre-intervention phase (3 weeks) – Active intervention phase (9 weeks) – Post-intervention phase.	*Child Outcomes* – Parent-reported ECBI, BASC-PMR, SSRS-P, and GCF. *Parent Outcomes* – LIFT Parenting Practices Interview	ECBI, BASC-PMR, and SSRS-P: pre- to post-score change of >1 standard deviation in the predicted direction a significant improvement. GCF and BASC-PMR: mean-phase level changes, visual analysis of trend changes,	*Child Outcomes* – Two of four children < on ECBI and SSRS-S. Three children showed < in hyperactivity, and one showed > in attention on BASC-PMR. All children showed improvements in attention and hyperactivity on GCF. Three children showed < in internalizing problems and > in adaptive behaviour on BASC-PMR, and > in social skills on GCF and SSRS-R, and > in academic functioning on the GCF. *Parent Outcomes* - Two of the four parents > (increase of >0.5 point on a 7-point scale) in 'positive parenting' and 'setting clear expectations' subscales on LIFT. No other reported improvements in parenting style.	NR

Table 2 cont…

							and effect sizes.		
Calam et al (2008)	RCT – 723 families randomized to Standard Media Self-help (SH) [c] vs. Enhanced Media Self-help (ESH) [c].	Non-clinical sample. Child between 24 and 120 months.	SH: Viewed a six-episode TV series (30 minutes per episode) of 5 families undergoing therapist-led group Triple-P + weekly reminder e-mails. ESH: Five-episode TV series (60 minutes per episode), + written self-help, parenting tip sheets, audio/video streaming of parenting messages, and e-mail.	24 to 120 months. SH: *M*=86 months ESH: *M*=88 months	Pre-post intervention, and 6-month post-intervention.	*Child Outcomes* – Parent-reported ECBI. *Parent Outcomes* – Parent-reported PS, PPC, PAI, PTC, RQI, and DASS	Per protocol	*Child Outcomes* – SH and ESH children showed<ECBI Intensity*** & Problem***. *Parent Outcomes* - SH and ESH parents improved on all parenting style and parental adjustment measures***, except for RQI. Improvements maintained at 6-month follow-up***	NR

Note. RCT = Randomized controlled trial; WLC = Waiting list control; ECBI = Eyberg Child Behavior Inventory; PDRC = Parent Daily Report Checklist; PSOC = Parenting Sense of Competence; PS = Parenting Scale; DASS = Depression-Anxiety-Stress Scale; PPC = Parent Problem Checklist; CBCL = Child Behavior Checklist; SDQ = Strengths and Difficulties Questionnaire, PPQ = Positive Parenting Questionnaire; GLSQ = General Life Satisfaction Questionnaire; CES-D = Center for Epidemiological Studies – Depression Scale; ADAS = Abbreviated Dyadic Adjustment Scale; FOS-R= Revised Family Observation Schedule; BDI = Beck Depression Inventory; CAP = Child Abuse Potential Inventory; DPICS = Dyadic Parent-Child Interaction Coding System; PSI = Parenting Stress Index; PDR = Parent Daily Reports; PAI = Parental Anger

Table 2 cont…

Is the Evidence-Base supporting Self-Help Parent Programmes robust?

There are a number of methodological issues arising from the interventions reviewed above that warrant further discussion. First, the design of the studies is particularly robust as the majority of studies included a comparison control group, with the exception of Lavigne et al's (2008) study, although this study did include random assignment to a self-help or therapist-led group. Second, only a small number of trials included independent observation of child behaviour and parent-child interaction following intervention (Sanders et al, 2000, Webster-Stratton et al, 1988, 1989; Webster-Stratton, 1992). The remainder relied solely on parent-reports and consequently parent observations and reports of child behaviour should be interpreted with caution. However, it is important to note that all studies reviewed above utilised psychometrically sound parent-report measures of child disruptive behaviour. Both the Eyberg Child Behaviour Inventory (Robinson et al, 1980), and Parent Daily Report (Chamberlein & Reid, 1987) have been used extensively in treatment outcome studies and are highly reliable and valid instruments. Furthermore, a number of studies relied on both mother and father reports of child behaviour. Markie-Dadds and Sanders (2006a) reported that fathers' ratings of child behaviour were highly correlated with mothers' ratings, suggesting high rates of concordance between mother and father ratings.

Third, the majority of studies recruited children that scored within the clinical range on well-validated parent-report measures of child conduct behaviour. However, the trial conducted by Hahlweg et al (2008) only included a small number of children who reached clinical levels of problem behaviour,

making it unclear whether similar treatment gains would be evident in clinical samples displaying more severe levels of problem behaviour. Indeed, only one trial reviewed recruited children with a clinical diagnosis of externalizing disorder (Lavigne et al, 2008), reporting positive results of self-help at follow-up.

All trials reviewed above, with the exception of Webster-Stratton et al (1988, 1989), which included professionally referred families (57% of the sample), solely relied upon self-referred families, typically recruited via community outreach campaigns, including local schools, and community centres. Consequently, it is likely that families were well motivated to access and utilise information regarding parenting. Similarly, the demographic characteristics of the families recruited into the trials included primarily Caucasian families, a large majority of parents were educated to at least year 10 British GCSE equivalent, and were married. Therefore, the results of the trials reviewed above may not be generalisable to families with additional stressors, such as single-parenthood and lower levels of education. However, Sanders et al (2000) targeted parents in three low-income areas and required parents' had at least one family adversity factor, such as maternal depression, low family income, and relationship conflict in order to be eligible for inclusion in the trial, demonstrating that self-help programmes can be efficacious for families with high levels of adversity in addition to child problem behaviours.

Fourth, some trials have reported differential attrition between self-help and therapist-assisted interventions (Morawska & Sanders, 2006), suggesting that without therapist input parents may prematurely terminate treatment. However, it

is important to note that there were no significant differences in attrition rates between self-help and therapist-delivered programmes in Sanders and colleagues (2000) study, suggesting that self-help intervention was as effective at retaining parents in treatment as interventions that included intensive therapist support. However, results showed that across all treatment groups there was a higher level of attrition among families with more severe child behaviour problems and higher levels of maternal depression and marital conflict. These findings highlight the need to develop additional strategies that encourage parents to remain in treatment, irrespective of whether a programme includes practitioner support.

Fifth, only one study reviewed above included a measure of parents' compliance and use of the self-help materials. Hahlweg et al (2008) examined dose-outcome relationship and reported a significant correlation between number of chapters read and improvements in parenting practices. Whilst Sanders and colleagues (2000) reported that 70% of parents completed the 10-session self-help programme in the allocated intervention period, it is unknown to what extent mothers actually engaged with and implemented the advice they read in the materials. A measure of parental compliance with and use of self-help materials would help determine if there is a dose-response relation, whereby parents who make greater use of the materials demonstrate significantly better outcomes. Sixth the majority of evidence for self-help presented in this review are based on studies which have utilised the Triple P intervention. While this intervention does seem to dominate the self-help literature, these studies include independent replications, suggesting that outcomes are intervention driven rather than

intervention developer driven. The review also includes self-help studies using the Incredible Years intervention which further suggests that it is mode of delivery and content rather than content alone that is associated with outcome. Finally, while the presence of a confirmed learning disability was a key exclusion criteria for this review, one study (Sanders et al, 2008) reviewed did include a small percentage of children with a learning disability as endorsed by parents during a pre-screening interview. However, as the disability was not confirmed in any standardised way, not even via a parental reported questionnaire, it was decided to include the study in this review.

How acceptable are Self-Help Parent Programmes?

A number of studies have reported significantly higher dropout rates in self-help alone treatment conditions (Nicholson & Sanders, 1999; Morawska & Sanders, 2006; Sanders et al, 2000; Webster-Stratton et al, 1988). Based upon the evidence reviewed here parents view self-help interventions favourably, but significantly less so than interventions that include some form of therapist input. For example, Sanders et al (2000) reported that overall, all parents were satisfied with the programmes they received, however, parents who participated in the therapist-delivered programmes reported significantly higher levels of parental satisfaction than parents who received the self-help programme. Similarly, Markie-Dadds and Sanders (2006b) showed that mothers who received a therapist-assisted self-help intervention reported significantly higher mean

satisfaction ratings compared with mothers who received self-help alone. It is likely that parent ratings of satisfaction are influenced by the choices they see themselves as having, and when parents have the opportunity to complete a therapist-assisted programme, the self-alone programme is rated less favourably.

Future Directions

In order to ensure that self-help parent programmes become more widely available for families, a number of areas require further investigation. Although a number of trials have included treatment acceptability measures in order to assess how favourably parents view self-help programmes, little is known about parents' pre-treatment attitudes towards self-help versus traditional, therapist-led treatments. It is likely that further research into parents' attitudes regarding self-help programmes would be beneficial to clinicians in predicting families' motivation and thus potential to benefit from a self-help programme. Furthermore, research will need to identify whether personal and socio demographic factors (e.g. literacy, internet and DVD access) are relevant in families' choice of self-help treatments.

The majority of trials reviewed in this paper included non-clinically referred community samples, and although many studies did include children with clinical levels of problem behaviour, these reports were based solely on parents views and were not corroborated by independent clinical diagnoses. Based upon this evidence, it is unclear whether self-help parent programmes would be efficacious for clinical samples which are likely to differ considerably in

symptom severity, co-morbidity, and adversity compared with community samples. Clinical trials that evaluate the efficacy of self-help with clinically-referred children need to be conducted.

The long-term impact of self-help parent programmes needs to be evaluated. The majority of trials include 6-month to 1-year follow-up periods, which when compared with traditional therapist-led programmes, is relatively short-term. Including longer follow-up periods may be particularly important, as it appears that positive changes following from self-help programmes occur over the longer-term (Markie-Dadds & Sanders, 2006a; Sanders et al, 2000). At the moment, definitive conclusions concerning the long-term benefits of self-help treatments remain elusive.

Whilst the existing evidence-base supports the efficacy of self-help parent programmes in improving child behaviour when compared with no treatment, its potential to lead to improvements in other domains, such as parental competence are less certain. Further randomized trials could help to clarify the efficacy of self-help parent programmes in improving outcomes in these domains.

An examination of moderators of outcome following self-help intervention needs to be conducted. This avenue of research is particularly important, as it will allow clinicians to identify relevant sub-groups of families who show particularly good treatment response to self-help programmes (Bretsan & Eyberg, 1998). A number of studies have examined maternal depression as a moderator of treatment outcome reporting mixed results. For example, maternal depression has been

associated with poorer outcomes following group-based parent training intervention (Webster-Stratton & Hammond, 1990) and individually delivered parent training (Sonuga-Barke et al, 2002). In contrast, mothers with higher levels of depression have demonstrated better treatment response following a group-based parent intervention, compared with non-depressed mothers (Baydar et al, 2003; Beauchaine et al, 2005). Given the mixed results, it is difficult to speculate about the relative impact of moderators on the efficacy of self-help programmes, however, without the motivation and support provided by a therapist, factors such as maternal depression might exert a greater role on the outcome of self-help interventions.

Self-help as an adjunct to pharmacological treatment also requires investigation. In one clinical trial examining the effects of stimulant medication as an adjunct to written self-help materials, Long and colleagues (1993) showed that parents who received the combined intervention reported reductions in the intensity of child oppositional behaviour both in the home and school setting, compared with families who received medication alone. This avenue of research requires further examination, especially in light of the fact that recent NICE (2008) guidance recommends drug treatment for school-age children with ADHD be used in *combination* with behavioural intervention, typically in the form of PT.

A head-to-head trial where varying modes of delivery, such as written, videotape, and minimal therapist input, are delivered separately would help to clarify the relative efficacy of each. As mentioned previously, one study involved combining all three modes of delivery within one intervention, thus it was not

possible to determine which mode of delivery made the most impact on outcome (Cann et al, 2003). The use of videotape has not been sufficiently compared to written self-help materials. A video's potential to model appropriate parenting strategies is greater than most written forms of presentation, with the added advantage that parental literacy levels are less of a problem.

The cost-effectiveness of self-help parent programmes also needs to be established. To date, only one economic evaluation providing evidence for the cost-effectiveness of self-help PT for child behaviour problems has been conducted (Christensen et al, 1980). It is likely that self-help PT will provide value for money when compared with traditional modes of delivery.

Conclusions

Research evidence has demonstrated that providing parents with a self-help programme is beneficial compared with no treatment. This conclusion is commensurate with a recent Cochrane review (Montgomery et al, 2006), which concluded that media-based self-help parent therapies for behavioural disorders in children had a moderate effect compared with no treatment. Furthermore, the addition of therapist assistance to a self-help programme appears to enhance child and parental outcomes.

Self-help parent programmes are less efficacious compared with therapist-led programmes over the *short-term*. However, over the longer-term outcomes associated with self-help programmes are similar to those achieved with more intensive therapist-led input (Markie-Dadds & Sanders, 2006a; Sanders et al,

2000). A recent meta-analysis examining moderators of outcome following PT programmes for child behaviour problems showed that mode of delivery of treatment did not significantly moderate parent and child outcomes, indicating that self-help programmes led to similar outcomes as those achieved with group-based and individually-led therapist programmes (Lundhal et al, 2006). The efficacy of self-help for families that have additional risk factors, such as single parenthood, low income, and maternal depression is less certain.

Whilst the evidence reviewed supports the efficacy of self-help parent programmes when delivered within a community setting and with non-clinically referred samples, the evidence supporting their use with clinically referred children is less well established. The lack of research evidence makes it unclear whether self-help would be appropriate for children displaying high levels of symptom severity and co-morbidity typically encountered in clinical samples. Based upon the current evidence, self-help may be best utilised within primary health care settings via community nurses and health visitors, for use with children with early-onset conduct problems. Moreover, self-help could form part of a stepped-care approach to treatment, where it may be used as the most basic and least intrusive level of intervention for families on waiting-lists within specialist clinical services, making self-help potentially useful clinically. Under these circumstances, self-help may prevent deterioration in child behaviour as the evidence supports the use of self-help compared with no treatment at all.

Self-help parent programmes have a number of advantages over group-based programmes. For example, they are potentially more cost-effective to

deliver and consequently can be disseminated to a wider population (Sanders et al, 2000). This is particularly important in light of the increasing numbers of children receiving a diagnosis of behaviour disorders (Scott et al, 2001) Additionally, self-help programmes reduce barriers to engagement making them easily accessible and convenient for parents.

Key messages

1) Self-help interventions are potentially useful clinically
2) Bibliotherapy and multimedia interventions have been shown to be effective
3) Self-help interventions can be as effective as therapist lead interventions in the longer term
4) Greater consideration needs to be paid to the type of parent and child that will benefit the most from a self-help intervention.

CHAPTER 3

A small scale randomized controlled trial of the Self-help version of the New Forest Parent Training Programme for children with ADHD symptoms.[2]

[2] This chapter formed the basis of a paper submitted to Behavior Research and Therapy (D. Daley., & O'Brien. M). A small-scale randomized controlled trial of the self-help version of the New Forest Parent Training programme for children with ADHD symptoms.

Abstract

Objective: To evaluate the efficacy of a self-help parent training programme for children with attention deficit hyperactivity disorder (ADHD). The New Forest Parenting programme – Self-help (NFPP-SH) is a 6-week written self-help psychological intervention designed to treat childhood ADHD.

Method: Forty-three children were randomised to either NFPP-SH intervention or a waiting list control group. Outcomes were child ADHD symptoms measured using questionnaires and direct observation, self-reported parental mental health, parenting competence, and the quality of parent-child interaction. Measures of child symptoms and parental outcomes were assessed before and after intervention.

Results: ADHD symptoms were reduced, and parental competence was increased by self-help intervention. Forty-five percent of intervention children showed clinically significant reductions in ADHD symptoms. Self-help intervention did not lead to improvements in parental mental health or parent-child interaction.

Conclusions: Findings provide support for the efficacy of self-help intervention for a clinical sample of children with ADHD symptoms. Self-help may provide a potentially cost-effective method of increasing access to evidence-based interventions for clinical populations.

Parent Training (PT) is an empirically supported treatment for children with ADHD (Fabiano et al., 2009; Chronis, Jones, & Raggi, 2006) and is recommended by the National Institute for Health and Clinical Excellence (NICE) as a first-line treatment in the management of pre-school, and school-age children with moderate symptoms of ADHD (NICE, 2009). PT programmes have been used to successfully treat the core symptoms of the disorder (Sonuga-Barke et al, 2001) as well as co-occurring oppositional and non-compliant behaviour (Bor et al, 2002).

One promising PT intervention for childhood ADHD is the New Forest Parent Training programme (NFPP). The NFPP was developed to specifically target ADHD behaviours and the psychological deficits thought to underlie them (e.g. executive dysfunction). Two clinical trials have examined the efficacy of individual therapist-led NFPP (Sonuga-Barke et al, 2001; Thompson et al, 2009). Unlike PT programmes that are based on generic approaches designed to reduce conduct problem behaviours, the NFPP has been designed specifically for ADHD populations and is based upon key aetiological theories thought to underlie the disorder. The main aim of the programme is to achieve long-lasting reductions of the core symptoms of ADHD across multiple settings (e.g. home and school). The intervention builds upon generic PT approaches by combining behaviour management techniques with novel therapeutic elements based on developmental models of social and cognitive development. This focuses on the need to develop constructive and reciprocal interaction between parent and child through which the child's self-regulatory skills are developed. The concept of constructive

parenting – whereby a parent acts as an 'engine' for the development of their child's self-regulatory and self-control abilities, is a fundamental component of the intervention. The NFPP also works on parental communication style and language skills in the child. The parent engages with the child by using games to help the child to attend, concentrate, take turns, enhance working memory and learn to wait. Parents also learn to identify and expose the child to numerous real-world situations that call for the use of regulatory skills being taught (i.e. teachable moments) in order to provide opportunities for generalization.

Sonuga-Barke and colleagues (2001) showed that individual therapist-led NFPP significantly reduced ADHD symptoms, when compared with a parent counselling and support group (PC&S) and a waiting-list control group (WL), and these positive treatment gains persisted up to 15 weeks after treatment. Furthermore, the effect size for ADHD symptoms (ES = 0.87; 53% normalization) was within the range found with stimulants in preschoolers (Swanson et al. 1993). NFPP also led to significant improvements in maternal wellbeing. In a more recent trial of individual therapist-led NFPP, Thompson and colleagues (2009) reported large (effect size >1) and significant treatment effects on parent-reported child ADHD symptoms, when compared with treatment as usual (TAU). Furthermore, mothers in the NFPP condition showed a significant reduction in negative comments when talking about their child during a speech sample. Unlike the findings reported by Sonuga-Barke and colleagues (2001), parental psychopathology (ADHD symptoms and depressed mood) was not significantly improved by NFPP. However, it is likely that the small sample size

of the study limited the ability to demonstrate statistical significance for all but the largest effect sizes.

The main modes of delivery of PT for children with ADHD are group-based, or individual therapist-led programmes and despite the efficacy of therapist-led PT programmes, such as NFPP in reducing child ADHD symptoms, the associated cost of delivering PT as part of routine clinical services is likely to be significant due to therapist training and on-going supervision (Foster et al, 2007). Furthermore, parents may experience barriers, such as work schedules, or lack of childcare provision, which may prevent them from engaging with the programme. Self-help PT has been proposed as an alternative delivery format in order to increase access to evidence-based treatments in this population, whilst removing barriers to treatment participation.

There is a convincing evidence base supporting the efficacy of self-help PT for children with behavioural problems. A number of clinical trials report significant improvements in child problem behaviour following self-help PT (Markie-Dadds & Sanders 2006a, b; Sanders et al, 2000; Webster-Stratton, 1990). However, the use of self-help PT as a stand-alone treatment for clinically referred children with ADHD has not been evaluated. There is some evidence that self-help PT, when used in combination with psychostimulant medication leads to reductions in child ADHD symptoms, (Long, Rickert, & Ashcraft, 1993). Previous evaluations of self-help PT also report improvements in parental competence and efficacy, parenting style, and parental adjustment (stress,

depression, and anxiety; Calam et al, 2008; Connell et al, 1997; Hahlweg et al, 2008; Sanders et al 2000; 2007).

Rationale for study

This paper reports the results from the first randomized controlled trial of self-help NFPP (NFPP-SH) for clinically referred school-age children with ADHD symptoms. The NFPP-SH was selected as the intervention programme for this trial because of the impressive evaluation data from previous evaluations of the therapist-led NFPP programme. Furthermore, a self-help version of the programme had been developed, but had not been evaluated.

Our primary aim was to evaluate the efficacy of the NFPP-SH in reducing children's ADHD symptoms. We also examined any post-intervention improvements in parent-child interaction, parental competence, and parental mental health.

Method

The project received Ethical Approval by the North East Wales NHS Trust, the North West Wales NHS Trust and the School of Psychology at Bangor University, North Wales.

Recruitment and Participants

Forty-three children (35 boys) between the ages of 49 and 132 months (M = 87.4, SD = 18.3) meeting study criteria for ADHD entered the trial. Children were recruited over a 29-month period via local child and adolescent mental health

services. Children had been referred to the child and adolescent mental health service for ADHD assessment and were on the waiting list for an assessment when recruited into the trial.

Screening: clinical interview

Sixty-four parents were screened initially during the recruitment phase. These parents were administered an interview – the parental account of childhood symptoms (PACS, Taylor, Sandberg, Thorley, & Giles, 1991). The PACS is a structured clinical interview used to assess the core symptoms of ADHD. Parents describe the frequency and severity of ADHD symptoms over the previous six months across a range of situations (e.g. in the home, with friends, in public). These descriptions are then rated by a trained interviewer using criteria validated according to clinical practice (Sonuga-Barke et al., 2001). The PACS has been shown to have good psychometric properties (Taylor et al, 1991). Inter-rater reliability of PACS in a sample of children with ADHD has been reported as satisfactory (ranging from 0.79 to 0.96) and has been found to correlate with teacher and parent rating scales of ADHD (0.68 and 0.78 respectively; Christiansen et al, 2008). The PACS demonstrates good test-retest reliability (0.83; Sounga-Barke et al, 2001) and has been validated against direct measures of symptoms (Sonuga-Barke et al, 2001). Inter-rater reliability on 10 random samples demonstrated excellent inter-rater reliability ($r = 0.89$) while an examination of the 19 cases in the waiting list control group also demonstrated excellent test-retest reliability ($r = .87$).

Inclusion into the trial was a score of 17 or over on the PACS. Five children did not meet clinical criteria according to the PACS interview. IQ was not assessed during the trial due to limited resources. Sixteen families decided at this stage to go no further (before randomization). Forty-three families entered the trial and were randomized. Figure 2 provides a flow chart showing recruitment, randomization, and patterns of drop out from the study. No child received medication during the trial or follow-up period. We did not include a standardised assessment of child learning disability, although entry to the child and adolescent mental health service would preclude the presence of a learning disability.

Demographic characteristics of the sample are presented in Table 3. The sample included 39 mothers and four fathers. Parents' mean age was 441.6 months (SD = 78.1). The mean age of the index child was 87.4 months (SD = 18.3), and they were predominantly male (81%). The mean number of children in the family was 2.42 (SD = 1.18). There were no significant differences between the intervention and control groups on these socio-demographic characteristics at baseline, indicating that groups were well matched on these factors.

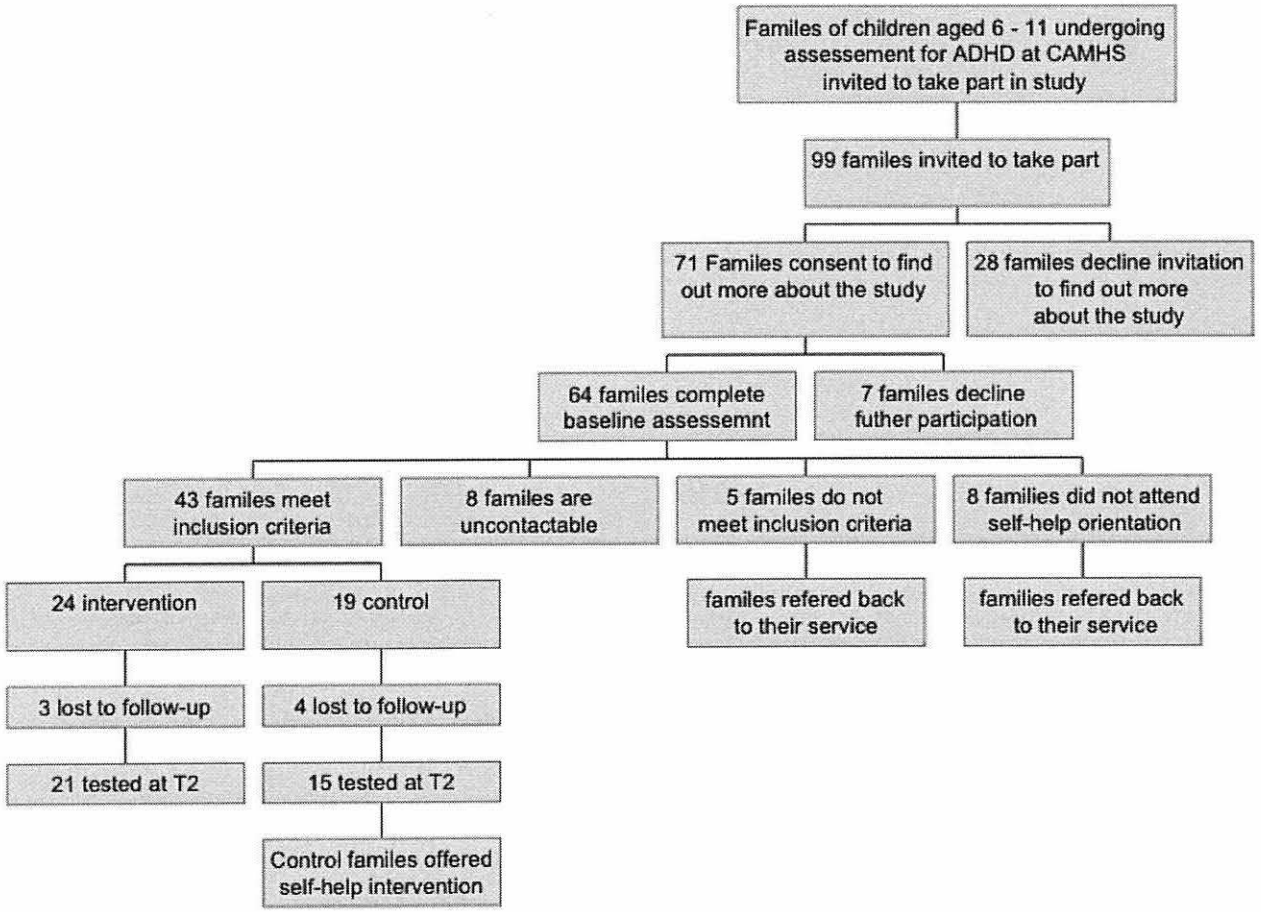

Figure 2. CONSORT flow diagram showing flow of participants through the randomized control trial for study1.

Table 3. *Demographic characteristics of participants showing parent (months) and child age (years) and number of children in family**

	NFPP-SH (N=24)		WLC (N=19)	
Variable	**Mean**	**SD**	**Mean**	**SD**
Child's age	7.27	1.66	7.30	1.39
Parent's age	37.08	7.59	36.44	5.00
Number of children in family	2.42	1.25	2.42	1.12

Note: NFPP-SH = New Forest Parent Training Programme- Self-help; WLC = Waiting list control group.

* Groups did not differ significantly on any characteristic (x^2 and analysis of variance)

Trial design

Participants were randomized (using a random number generator) to either the immediate NFPP-SH (n = 24) or delayed self-help (n = 19) condition. All outcome measures were collected immediately before treatment (T_1) and after treatment (T_2) for both arms of the trial.

Treatment conditions

Immediate self-help

Parents of children allocated to the immediate NFPP-SH condition were invited to attend a two-hour small group induction to the self-help material. Three parents were not able to attend any of the small group inductions and so received a two-hour home visit to introduce them to the self-help material. All group and individual inductions were conducted by the first author and followed the same structured format: i) Psycho-education about ADHD to help the parent understand why their child behaved in certain ways, ii) research evidence from previous therapist led trials of the New Forest Parent Training Programme to help parents to see that it was possible to change their child's behaviour, iii) an explanation of the key strategies introduced in the self-help manual, and iv) discussion of potential barriers to implementing strategies in the home, including how to involve siblings, and motivate partners and other adults involved in the care of the child with ADHD. At the end of the induction, each parent was provided with as many copies of the self-help manual as they wished. Parents often sought at least three copies of the self-help material, one for themselves, one for their partner and one for their child minder or the child's teacher. Parents received a weekly reminder telephone call during the six weeks that they were following the self-help programme. This telephone call served two purposes: i) to remind the parent to progress to the next week of the programme and ii) as a safety monitoring call to ensure that participation in the self-help programme was not associated with unanticipated side effects.

Delayed self-help

Parents of children allocated to the delayed self help were contacted after randomisation and informed that they were allocated to the delayed intervention group and were provided with a date to attend an induction group approximately 10 weeks later. As the trial progressed, induction groups included both immediate and delayed self-help intervention parents.

Assessment schedule

The assessment schedule was identical for both conditions. All measures of child symptoms and functioning, parental mental health, and parent-child interaction were collected at T_1 and T_2 by a researcher at the family home. Every effort was made to keep the researcher blind to the treatment status of the children, and parents were told not to discuss their treatment status with the researcher. The researcher coded observation of child solo play and parent-child interaction during the home visit.

Outcome Measures

Child ADHD symptoms

Clinical interview

The PACS (Taylor et al, 1991) used as the screening interview was also used to provide ADHD outcome.

ADHD Rating Scale (DuPaul et al. 1998)

The DuPaul ADHD rating scale is a commonly used measure based on the DSM-IV diagnostic items. Parents responded to 18-items on a 4-point scale ranging from 0 (Never) to 3 (Very often). Children with six or more items endorsed as often or very often on the hyperactive/impulsive scale or six or more items endorsed on the inattentive scale met criteria for clinically significant problems for those ADHD scales (Psychogiou et al, 2007). Both subscales have good test-retest reliability (all $r = .75$ at a 4-week interval), and internal consistency with all alpha coefficients greater than .80 (DuPaul et al, 1998).

Direct observation of child over-activity and inattention

The child was asked by the researcher to play alone with a set of standard toys for 10 minutes. The toys included a play-doh animal set, large lego blocks, and sets of toy cars and dolls. Patterns of attention to and switching from one activity to another during independent play were measured. An index of engagement was calculated (time on-task/total number of switches from one to another). High scores represent more attention and less switching. Inter-rater reliability was examined on 10 random cases (five each from T_1 and T_2). Inter-rater reliability for the measure was good ($r = 0.91$). Test-retest reliability was examined using the 19 participants in the waiting list group. Test-retest reliability was acceptable ($r = 0.54$).

Parental well-being and parental behaviour

Mental Health

The General Health Questionnaire (GHQ12, Goldberg, 1982) is a widely used, reliable and well-validated self-report questionnaire, and was used to assess parental depressed mood. The scores from the 12 items are combined to produce an overall rating. Responses are made on a 4-point anchored scale, scored 0 (better than usual); 0 (the same as usual); 1 (less than usual); and 1 (much less than usual). The presence of three symptoms indicates elevated levels of low mood (Goldberg, 1982). The internal consistency of the GHQ has been shown to be satisfactory ($\alpha = 0.91$; Thompson et al, 2009), with moderate ($r = 0.43$; Thompson et al, 2009) to good ($r = 0.84$; Piccinelli, Bisoff, Bon, Cunico, & Tansella, 1993) test-retest reliability.

Parenting efficacy and competence

A 17-item version of the Parental Sense of Competence Scale (PSoC; Johnston & Mash, 1989) was used to assess parents' views of their competence as parents on two dimensions: a) satisfaction with their parenting role (reflecting the extent of parental frustration, anxiety, and motivation); and b) feelings of efficacy as a parent (reflecting competence, problem-solving ability, and capability in the parenting role). The Total score (16 items), Satisfaction factor (9 items), and the Efficacy factor (7 items) show a satisfactory level of internal consistency ($\alpha =$ 0.79, 0.75, and 0.76 respectively; Johnston & Mash, 1989).

Direct observation of parent-child interaction

Parent-child interaction was assessed using a semi-structured, 15-minute live home observation system—the Global Impressions of Parent-Child Interactions-Revised (GIPCI-R; Brotman, Calzada, Dawson-McClure, 2003). The 15-minutes of semi-structured play interaction was divided into three 5-minute tasks:

1. The parent was asked to play together with their child, as they would do normally, with the toys the researchers provided (described above).
2. The parent was then asked to complete a jigsaw puzzle with the child. The child was presented with a choice of two puzzles, and they were requested to choose one. The parent was instructed to help the child complete the puzzle, but not complete it for the child.
3. Finally, the parent was instructed to ask the child to tidy away the toys. The parent was asked to let the child do it but to help if necessary to enable the child to comply.

A series of child and parenting behaviours were rated on a scale of 1 – 5, with the higher scores representing more positive interactions. Child items rated were; valence, respect for parent, disconnection, destruction, disruptive, non-compliance, and social skills. Parents were rated on valence, responsiveness, warmth, praise, enjoyment, scaffolding, effectiveness, aggression, and criticism/punishment. In a recent study with preschool age children with ADHD, Thompson et al (2009) reported good internal consistency of scales for child and parent item codes ($\alpha = 0.86$; $\alpha = 0.87$). Furthermore, test-retest reliability was adequate for the parent scale ($r = 0.50$),

but low for the child scale ($r = 0.20$), whilst inter-rater reliability across all item codes was adequate for child (intra-class correlation = 0.62; range 0.48-0.77), and parent (0.64; range 0.48-0.79). In the current study, inter-rater reliability was assessed using 10 random cases (five each from T_1 and T_2). Inter-rater reliability was good (parent scale $r = 0.73$; child scale $r = 0.79$). Test-retest reliability was examined on the 19 cases in the waiting list control group. Test-retest reliability for the parent scale was adequate ($r = 0.55$) but lower for the child scale ($r = 0.44$).

Implementation fidelity of self-help intervention

To assess implementation fidelity of self-help, a Fidelity Index was created from individual target behaviours on the GIPCI that were specifically highlighted in the self-help manual. The Fidelity Index consisted of the sum of nine target parental behaviours: scaffolding, eye contact, cue-in, distraction, expansion, bargaining, praise, responsiveness, and reasoning. Using ANCOVA, intervention and control parents did not differ at T_1 on their fidelity index (M [self-help] = 17.45; M [control] = 17.63, F (4,32) = 0.04, $p = 0.85$). However, one way ANCOVA with T_1 fidelity score entered as a covariate revealed a significant difference between the groups at T_2, with intervention parents demonstrating significantly more target behaviours, compared with control parents (M [self-help] = 19.58; M = [control] 17.31, F (4,32) = 10.54, $p = 0.00$).

Results

Attrition

Inclusion of cases in the analyses was performed on an intention to treat basis. Attrition rates were generally low. Of the 43 families assessed at baseline, 35 (84%) completed follow-up assessment. Of the eight who failed to complete post-assessment, three were in the intervention group, and four in the waiting list control group (see Figure 2). Table 4 reports the child and parent symptom profiles of those children who remained in the study throughout and those that dropped out. Drop-outs had more severe ADHD as measured by parent completed questionnaire. Drop-outs and completers were similar in other respects.

Preliminary analyses (equivalence)

Initial analyses examined the equivalence of groups at T_1 on primary measures of outcome. Results of a Kolmogorov Smirnov test indicated that while the majority of the measures were parametric, both the observational measure of child activity, and DuPaul Hyperactive/Impulsive and Inattention measures were significantly non-normal: $D(43) = 2.07, p = 0.00$; $D(43) = 1.45, p = 0.03$; and $D(43) = 1.65, p = 0.00$ respectively. However, ANOVA is robust to the violation of the nonparametric assumption with more than 15 cases per cell (Green et al, 2000).

Table 4. *A comparison of children who remained in (completers) and dropped out of the trial*

Variable	Completers	Drop-outs	*t*
Child age (months)	89.31	79.00	1.46
	(18.43)	(16.28)	
Child ADHD Symptoms			
PACS	20.91	21.88	-.43
	(5.73)	(5.89)	
Engagement	180.21	341.58	-1.87
	(206.51)	(277.11)	
DuPaul Inattention	22.11	16.63	2.01
	(16.63)	(6.21)	
DuPaul Hyperactive/Impulsive	22.20	22.63	2.51*
	(7.36)	(2.26)	
GIPCI Child	4.02	4.30	-1.72
	(0.46)	(0.16)	
Parent			
GHQ	4.20	2.25	1.83
	(4.04)	(2.31)	
PSOC Efficacy	21.43	20.00	1.16
	(3.08)	(3.42)	
PSOC Satisfaction	23.03	24.75	-.82
	(5.10)	(6.32)	

Note. Figures in parentheses are standard deviations. *ADHD*=attention deficit/hyperactivity disorder, *PACS*=parental account of childhood symptoms, *GIPCI*=global impressions of parent-child interaction, *GHQ*=general health questionnaire, *PSOC*=parental sense of competence. * = $p<.05$

Using a series of one-way Analysis of Variance ANOVAS, no significant differences were found between the two groups at T_1, except for a marginal

significant difference on DuPaul Hyperactive/Impulsive behaviour, with control parents rating their children as having higher scores on this measure: $F(4,32) = 3.84$, $p = 0.09$. In general, these results indicate that intervention and control families were well matched prior to receiving self-help intervention.

Self-help intervention effects on child behaviour

The main effects of NFPP-SH on child behaviour were examined using ANCOVA, with self-help versus control as the between subject variable, and T_1 scores entered as the covariate. Inclusion of cases in the current analyses was done on an intention to treat basis, in order to preserve randomization. All participants who were randomly allocated to either intervention or control were therefore included in the statistical analyses. As no post-intervention outcome data were available for the families who dropped out, it was therefore assumed that there had been no change, and their baseline scores were carried forward to the follow-up.

Table 5 reports T_1 and T_2 descriptive statistics for each condition. The mean and SDs for each outcome measure at T_1 and T_2 are presented for NFPP-SH and control conditions in Table 6, alongside the outcome of the statistical analysis in terms of significance and effect size. There was a significant effect of treatment on parent-reported child ADHD symptoms as measured on the PACS. NFPP-SH produced significant reductions in ADHD, compared with control children. A medium effect size indicated a meaningful difference between NFPP-SH and

control. Improvements in PACS scores were supported by similar improvements on parent-reported DuPaul Inattention and Hyperactive/Impulsive scores. There were significant and large effects of NFPP-SH on ADHD symptoms (average d = 1.09), although the magnitude of the effect size for DuPaul Hyperactive/Impulsive was influenced by an increase in scores on this sub-scale in the control group at T_2. The impressive improvements in ADHD symptoms on parent-reported clinical interview and questionnaire measures were not supported by independent behavioural observation of child activity. There were no significant differences between intervention and control children on the observational measure of child activity, or GIPCI scores at T_2, and small effect size differences (average d = 0.23).

Self-help intervention effects on parental well-being and parental behaviour

ANCOVA was also used to examine the impact of self-help intervention on parental well-being and parental behaviour. An examination of Table 4 shows that NFPP-SH resulted in significant improvements in parental efficacy and satisfaction. Effect sizes for parent-reported improvements in these domains were large (average d = 1.84). Parental mental health was not improved by NFPP-SH, according to parental report on the GHQ. There were no effects of intervention on independently observed parental behaviour according to GIPCI scores.

Clinical significant change in ADHD symptoms

To examine clinical significant change as opposed to statistical change, three criteria were used to investigate levels of clinical significant change: i) a reduction

in scores to below clinical threshold on the PACS (<17), ii) reduction in age and gender adjusted scores to below 90th and 80th percentile on the Total score DuPaul ADHD scale, and iii) the Reliable Change Index (RCI; Jacobson & Truax, 1991). Using the clinical cut-off criteria, 45% of the intervention group, compared with 15.8% of the control group, had T_2 scores that had fallen below the level of clinical concern on the PACS (< 17; Taylor et al, 1991), yielding a number needed to treat (NNT) of 3.33 (95% CI 1.6 – 6.41). Using gender and age adjusted norms for the DuPaul ADHD Rating Scale Total score (DuPaul et al. 1998), 0% of children in either intervention or control group scored below the 93rd, 90th, or 80th percentile at T_2. When data were analyzed using RCI criteria, 0% of NFPP-SH, and 0% of control children met the Jacobson and Truax (1991) criteria for recovery by the end of the trial.

Table 5. *Child behaviour and parental adjustment scores for children in the intervention and WLC group at T_1 and T_2*

Outcome	Method	NFPP-SH ($N = 24$)		WLC ($N = 19$)	
		T1	T2	T1	T2
Child					
ADHD	PACS	20.54	16.70	21.78	22.10
		(5.60)	(5.32)	(5.89)	(5.96)
	DuPaul Inattention	20.13	17.08	21.47	21.26
		(4.72)	(4.83)	(4.77)	(5.26/)
	DuPaul Hyperactive/Impulsive	22.21	17.03	21.89	23.26
		(3.39)	(4.84)	(5.38)	(5.98)
	Engagement	212.27	239.72	187.25	218.87
		(241.53)	(233.90)	(198.83)	(219.09)
P-C interaction	GIPCI Child	4.04	4.02	4.10	4.16
		(0.51)	(0.55)	(0.31)	(0.21)

Parent					
Depression	GHQ	4.55	4.05	3.55	3.93
		(4.03)	(4.22)	(4.05)	(4.23)
Efficacy	PSOC	20.79	26.08	21.63	21.26
		(3.17)	(4.31)	(3.15)	(3.22)
Satisfaction	PSOC	22.37	27.83	24.58	20.10
		(5.37)	(6.11)	(5.09)	(4.94)
P-C interaction	GIPCI Parent	2.94	2.92	2.92	3.00
		(0.34)	(0.45)	(0.30)	(0.29)

Note. Figures in parentheses are standard deviations. The P-C (parent-child) Interaction variables are derived from the GIPCI (Global Impressions of Parent-Child Interactions) items. *ADHD* = attention deficit-hyperactivity disorder; *PACS* = Parental Account of Childhood Symptoms; *GHQ* = General health Questionnaire; *PSOC* = Parental Sense of Competence.

Table 6. *Means and effect sizes of child and parent outcome measures at Time 1 (T_1) and Time 2 (T_2).*

Outcome	Method	NFPP-SH (N = 24)		WLC (N = 19)		F	p	Cohen's d, T1 to T2
		T1	T2	T1	T2			
Child								
ADHD	PACS	20.54	16.70	21.78	22.10	16.55	0.00	0.73
		(5.60)	(5.32)	(5.89)	(5.96)			
	DuPaul Inattention	20.13	17.08	21.47	21.26	7.82	0.00	0.58
		(4.72)	(4.83)	(4.77)	(5.26)			
	DuPaul Hyperactive/Impulsive	22.21	17.03	21.89	23.26	8.11	0.00	1.61
		(3.39)	(4.84)	(5.38)	(5.98)			
	Engagement	212.27	239.72	187.25	218.87	0.10	0.98	0.26
		(241.53)	(233.90)	(198.83)	(219.09)			
P-C interaction	GIPCI Child	4.04	4.02	4.10	4.16	1.60	0.21	0.21
		(0.51)	(0.55)	(0.31)	(0.21)			
Parent								
Depression	GHQ	4.55	4.05	3.55	3.93	2.46	0.13	0.29
		(4.03)	(4.22)	(4.05)	(4.23)			
Efficacy	PSOC	20.79	26.08	21.63	21.26	17.80	0.00	1.64
		(3.17)	(4.31)	(3.15)	(3.22)			
Satisfaction	PSOC	22.37	27.83	24.58	20.10	35.40	0.00	2.04
		(5.37)	(6.11)	(5.09)	(4.94)			
P-C interaction	GIPCI Parent	2.94	2.92	2.92	3.00	1.44	0.28	0.29
		(0.34)	(0.45)	(0.30)	(0.29)			

Note. Figures in parentheses are standard deviations. The P-C (parent-child) Interaction variables are derived from the GIPCI (Global Impressions of Parent-Child Interactions) items. *ADHD* = attention deficit-hyperactivity disorder; *PACS* = Parental Account of Childhood Symptoms; *GHQ* = General health Questionnaire; *PSOC* = Parental Sense of Competence.

Discussion

This study provides preliminary support for the potential value of self-help PT as a specialized treatment for childhood ADHD. To our knowledge, this is the first controlled trial to evaluate the self-help NFPP with a clinical population and there were significant effects of intervention on parent-reported child ADHD symptoms, and parental competence. Further investigation of the efficacy of self-help intervention demonstrated that just under half of intervention children showed clinically significant improvements in parent-reported child ADHD symptoms. The moderate-to-large effect sizes for treatment-related change in child ADHD symptoms and parental competence suggest that improvements from pre-to post-intervention in these domains were meaningful.

The current findings showing parent-reported improvements in child ADHD symptoms following self-help NFPP, are consistent with earlier work supporting the efficacy of therapist-led NFPP for children with ADHD. In the initial trial evaluating therapist-led intervention, Sonuga-Barke and colleagues (2001) reported a medium to large effect size for the reduction of ADHD symptoms in pre-school children following NFPP for both observed ADHD behaviour in the child (d = 0.69) and parental interview of ADHD symptoms (d = 0.87). By comparison, the effect size for parent-reported child ADHD symptoms on clinical interview in this small-scale trial are encouraging (d = 0.73), and show that self-help NFPP can be an effective form of intervention. It is important to note that parents in this study did not receive any therapist support throughout the intervention. When compared with mothers in the Sonuga-Barke et al (2001) trial,

who received on average eight-hours of individual therapist support for the duration of the intervention, the findings from the current study are particularly positive, and provide support that self-help intervention can lead to meaningful changes in child behaviour similar to those achieved with therapist support.

Treatment-related improvements in child ADHD on parental interview and questionnaire measures were not corroborated by direct observational assessment of child behaviour. This lack of congruence between different measures of child ADHD immediately following intervention weakens the conclusion that NFPP-SH was an effective treatment. There are a number of explanations that may account for the failure to find effects on this objective measure of symptom change. First, levels of independently observed child inattention and over-activity were relatively low when compared with previous studies (e.g. Sonuga-Barke et al, 2001), thus making it difficult to detect intervention effects. Second, improvements in ADHD symptoms may be limited to subjective elements of assessment tied to parental perceptions of child behaviour. Our results are consistent with those reported in a recent trial of therapist-led NFPP (Thompson et al, 2009) that reported no improvements on the observational outcome measure, despite large and significant effects of the intervention on parent-reported child ADHD. Finally, it may reflect the lower levels of reliability of this measure. These initial results will need to be replicated in a much larger trial. Despite the lack of significant findings in observed child ADHD, it is encouraging that improvements were reported on parental clinical interview scores, which eliminates potential biases inherent in parent-reported measures (Eddy, Dishion,

& Stoolmiller, 1997).

There were no effects of self-help intervention on independently observed parent-child interaction as measured by the GIPCI. These results are consistent with those reported in a recent trial of therapist-led NFPP (Thompson et al, 2009), and are somewhat surprising as the NFPP targets the parent-child relationship, through focusing on improving parental style and increasing positive parenting. Thompson and colleagues (2009) suggested that the failure to find treatment-related effects on observed parent-child interaction may be due to the fact that the components of parenting assessed by the GIPCI do not capture the changes brought about in parenting by the intervention, and they suggest including outcomes linked more closely to the specific parenting behaviours targeted by the NFPP.

Whilst not directly assessing the quality of parent-child interaction, in the current study an implementation fidelity index was created in order assess parental adherence and engagement with the self-help material, and included the sum of target parental behaviours (i.e. scaffolding, eye contact, cueing-in, distraction etc) that are specifically outlined in the self-help manual. Results revealed that intervention parents demonstrated significantly more target behaviours than control parents at post-intervention, suggesting that they engaged with the intervention and actively implemented specific parenting strategies highlighted in the self-help material. Whilst it is clear that self-help intervention led to an increase in the use of specific parenting behaviours, it remains unclear why these changes did not lead to improvements in the quality of parent-child

interaction. One possibility is that the impact of self-help intervention on parent-child interaction may take longer to become established. Indeed, previous evaluations of self-help PT for conduct problem children have consistently demonstrated that positive improvements in parent and child behaviour occur more gradually following self-help, compared with immediate and rapid short-term changes observed following therapist-delivered intervention (Markie-Dadds & Sanders, 2006a; Sanders et al, 2000). The lack of long-term follow-up in the current study may not have allowed us to capture the impact of self-help PT on parent-child interactions. Including longer follow-up periods may be particularly important in self-help studies, as it appears that positive changes following from self-help programmes occur over the longer-term.

Self-help intervention did not lead to improvements in parental mental health. Both previous trials (Sonuga-Barke et al, 2001; Thompson et al, 2009) evaluating therapist-led NFPP report contradictory results in terms of benefits of intervention on parental mental health, making it difficult to speculate about the impact of NFPP in this area of parental functioning. Parents in the current study did show elevated levels of low mood, which can interfere with consistent parenting (Sonuga-Barke et al., 2002) and research has shown that maternal depression can lead to poorer outcomes following group-based PT (Webster-Stratton & Hammond, 1990). Overall, our results are consistent with the self-help literature for parents with conduct problem children, which have shown that entirely self-administered intervention does not lead to significant improvements in parental mental health (Markie-Dadds & Sanders, 2006a, b; Sanders et al,

2000). However, including minimal levels of therapist support in addition to self-help materials appears to enhance parental outcomes and leads to improvements in parental adjustment (Connell et al, 1997). The lack of therapist support in the current study may help explain the absence of treatment effects in parental adjustment. Access to therapist support and the opportunity to discuss problems may be crucial in bringing about improvements in parental functioning, and further randomized trials will need to be conducted to help to clarify the efficacy of self-help PT in improving outcomes in parental well being. The current analyses do not allow us to identify what role parental wellbeing plays in predicting intervention outcome. It may be that without the motivation and support of a therapist, parental depression will exert a greater role on the outcome of self-help interventions. Future studies will need to examine this important issue. Nevertheless, improvements in child behaviour were reported, which is encouraging and suggests that parental low mood may be dissociated from behaviour change in the child.

There were large and significant improvements in parenting self-esteem following self-help intervention. Our results are consistent with previous evaluations of self-help PT for conduct problem children (Connell et al, 1997; Markie-Dadds & Sanders, 2006b), and add to the existing evidence base by demonstrating that self-help PT can produce effects beyond improved child behaviour in a clinical sample.

There are a number of limitations that need to be considered when interpreting the findings of this study. First, the small sample size limited the

ability to demonstrate statistical significance for all but the largest effect sizes. Second, the study did not include a follow-up period, which meant there was no scope for assessing treatment maintenance. Including longer-term follow-ups may be particularly crucial for self-help evaluations, as it appears that positive outcomes post-intervention occur over the longer-term (Markie-Dadds & Sanders, 2006a; Sanders et al, 2000). Longer-term follow-up data are needed to fully understand the ability of self-help to produce clinically relevant outcomes, such as whether children continue to improve. At the moment conclusions regarding the long-term benefits of self-help are unclear. Third, the study relied heavily on parents' reports of symptoms. An independent source reporting from a different setting (i.e. teacher) would have confirmed the parents' reports of child symptomatology. Fourth, we did not include a measure of parental satisfaction with self-help intervention. A number of previous trials have included treatment acceptability measures and demonstrate that parents view self-help as favourable, but significantly less so than interventions, which include some form of therapist support (Markie-Dadds & Sanders, 2006b; Sanders et al, 2000). Some studies also report significantly higher drop-out rates in self-help treatment conditions (Nicholson & Sanders, 1999; Morawska & Sanders, 2006; Webster-Stratton et al, 1988; Sanders et al, 2000). Future research will need to investigate the acceptability of self-help, and discover whether factors such as lack of therapist support impacts upon parents' motivation and ability to use self-help materials, as this will have important implications for treatment outcome. Finally, the study adopted the standard Jacobson and Truax (1991) definition of recovery. Although

the intervention was effective in moving 45% of intervention children into the non-clinical range on PACS, none of the intervention children met the criterion for clinically reliable change, suggesting that self-help PT on its own may be insufficient to cause a reliable change in child ADHD.

There are several important clinical implications that arise from the present findings. First, our results show that it is possible to bring about significant change in child behaviour and parenting variables using self-administered intervention. This challenges the perceived necessity for conventional therapist-led, face-to-face approaches to bring about change in families, as well as raising questions about the fit between families' needs, available services, and parental preferences (Calam et al, 2008). The current set of results show that self-help PT has the potential to form a highly cost-effective approach to treatment by enabling parents to access the help they need at time, which is convenient for them. Furthermore, the results suggest that self-help interventions are potentially useful for clinical populations. This finding represents a significant development to the existing self-help PT evidence-base for childhood mental health problems, which thus far has only demonstrated the efficacy of self-help when delivered in community settings with non-clinical samples (Connell et al, 1997; Markie-Dadds & Sanders, 2006a, b). Based upon the current results, self-help may be utilized within specialist clinical services for children with clinically significant levels of ADHD. The concept that minimal levels of intervention can significantly impact upon levels of child symptoms is also supported by our results. This has important implications for clinical

services, which may consider using self-help intervention within a stepped-care approach to treatment, where it could be used as the most basic and least intrusive level of intervention for families on waiting lists within specialist clinical services.

Overall, the present results support the use of self-help as an effective alternative delivery format in order to increase access to evidence-based treatments for ADHD populations. Additionally, the results suggest that offering self-help PT to parents that experience barriers to participating in traditional therapist-led programmes may be a useful strategy. Self-help PT has the potential to circumvent many of the barriers parents experience when trying to access clinical services, such as work schedules, lack of childcare, and travel to and from clinics.

In summary, the results of this study support the efficacy of self-help PT for children with ADHD. It was demonstrated that entirely self-administered parent training led to significant, clinically meaningful changes in parent reports of child ADHD symptoms, and parenting self-esteem. Given the lack of research in the area of self-help interventions, particularly for clinical populations, the results of this study provide a significant contribution to the literature.

CHAPTER 4

A qualitative study of the acceptability of self-help parent training for children with ADHD symptoms: a grounded theory approach.[3]

[3] This chapter formed the basis of a paper submitted to Child: Care, Health & Development, (O'Brien, M., Huws, J, C., & Daley, D). A qualitative study of the acceptability of self-help parent training for children with ADHD symptoms: a grounded theory approach.

Abstract

Objective: Self-help parent training (PT) for childhood behavioural problems is an efficacious treatment. However, the acceptability of self-help PT from the perspective of parents is unknown. This study examines mothers' perceptions of the acceptability of a self-help PT intervention for the treatment of children with ADHD symptoms.

Design: Five mothers who completed the six-week self-help intervention were recruited through local child and adolescent mental health services and interviewed following a semi-structured framework.

Methods: Mothers were asked to reflect on the potential advantages and disadvantages of self-help PT, and to consider the challenges and barriers to implementation. Mothers were also asked to comment on the effects of the intervention on child and parent behaviour and to evaluate the introduction to the self-help programme, the programme structure, and its overall content. The interviews were transcribed and analysed in detail using a grounded theory approach.

Results: Mothers' reported the convenience and accessibility of self-help as an advantage. Self-help PT changed mothers' perceptions of ADHD and helped them to normalise their child's behaviour. Positive changes in parent and child behaviour following intervention were reported. Disadvantages of self-help intervention included the lack of therapist and group support. Significant challenges and barriers to implementing self-help intervention included

persevering with intervention strategies, relapses in child behaviour, lack of social support systems, competing needs of other siblings, and time demands.

Conclusions: When self-help includes components of psycho-education, and a structured framework to tackle child problem behaviour, self-help is an acceptable and relevant form of treatment. Results suggest there may be merit in addressing parents' pre-treatment expectancies, and barriers to implementing self-help PT in order to increase the acceptability of this mode of intervention delivery. The addition of minimal levels of therapist support may also contribute positively to parents' perceptions of the acceptability of self-help as a mode of treatment delivery.

Attention deficit hyperactivity disorder (ADHD) in childhood is characterised by developmentally inappropriate levels of inattention and/or hyperactivity-impulsivity and is estimated to occur in 3% to 7% of school-aged children (American Psychiatric Association, 1994, 2000). The disorder is associated with significant difficulties in a range of areas, including academic, personal, and social functioning (Daley, 2006). Behavioural parent training (PT) is considered an empirically supported treatment for childhood ADHD (Fabiano et al, 2009; Daly, Creed, Xanthopoulos, & Brown, 2007). Controlled trials demonstrate these programmes to be effective in reducing child inattention and hyperactive/impulsive difficulties in children with co-morbid ADHD and conduct problems (Bor et al 2002; Jones et al, 2007, 2008). A recent trial evaluating the New Forest Parenting Programme (NFPP)—a specialised PT programme developed specifically for childhood ADHD—reported significant reductions in child ADHD symptoms following a 7-week therapist-led programme, and treatment gains were maintained at nine weeks post-intervention (Thompson et al, 2009). Additionally, a previous trial reported that NFPP led to significant improvements in maternal wellbeing, including maternal depressed mood, and parental efficacy and satisfaction (Sonuga-Barke et al, 2001).

The main modes of delivery of PT for childhood ADHD are group-based, or individual therapist-led programmes, where parents have access to trained therapist support throughout the duration of the programme. However, such programmes are resource and cost intensive, and require extensive therapist time through training and on-going supervision (Foster et al, 2007), making delivering

therapist-led PT programmes as part of routine care costly for under-resourced services (Webster-Stratton et al, 1988). Furthermore, parents have indicated that potential barriers, such as arranging childcare, having to travel to group meetings (Spoth et al, 1996), and lack of time (Spoth & Redmond, 1993b) are negatively related to inclination to enroll in PT. Time and scheduling conflicts may place practical limits on the overall level of participation in PT, especially for families who experience multiple barriers to participation. Barriers to PT also affects treatment outcome. Children in families who experience higher levels of barriers show significantly less therapeutic improvement post-treatment (Kazdin, 2000) and parents rate treatment as less acceptable than those with fewer barriers (Kazdin, 2000).

Self-help PT programmes have been proposed as an alternative delivery format for reducing barriers and increasing access to evidence-based treatment. Typically, self-help PT is completed without any, or with minimal therapist input (<less than 30 minutes per week) and therefore relies on parents to engage with and implement the material without or with minimal therapist assistance. Facilitating self-help treatments through using written (bibliotherapy), and/or multi-media formats to communicate parenting information and model effective parenting skills represent a potentially efficacious method of providing intervention for families. Furthermore, self-help PT programmes are potentially cost-effective to deliver compared with intensive therapist-led programmes and can therefore be disseminated to a wider population (Sanders, 1999). There is a convincing evidence base supporting the efficacy of self-help PT for children with

behaviour problems and a number of clinical trials report improvements in child behaviour following self-help PT, and there is evidence that self-help is as effective as therapist-led programmes over the longer-term (Sanders et al, 2000) However, the use of self-help PT as a stand-alone treatment for children with ADHD has not been evaluated, although there is evidence that self-help when used as an adjunct to medication management, leads to reductions in child ADHD symptoms (Long et al, 1993).

Despite the efficacy of self-help PT, a number of studies report a significantly higher drop out rate (Nicholson & Sanders, 1999; Morawska & Sanders, 2006; Sanders et al, 2000; Webster-Stratton et al, 1988), and lower levels of parent satisfaction (Markie-Dadds, & Sanders, 2006a; b; Sanders et al, 2000) following self-help treatment, compared with treatment with therapist input. However, parent satisfaction measures have focused on general aspects of satisfaction with self-help PT, such as quality of the service, parent perceptions of improvement in child behaviour, and whether parents would recommend self-help PT to others. Additional factors known to influence parental views of treatment acceptability in the PT literature, such as parental perceptions of the demands of treatment (Kazdin, 2000) have not been investigated in self-help PT. Furthermore, the absence of therapist input in self-help PT and its effect upon treatment acceptability has not been investigated. The parent-therapist relationship has important implications for treatment adherence, completion, parent satisfaction, and treatment outcome within the PT literature (e.g. Garcia & Weisz, 2002; Kazdin, Holland, Crowley, & Breton, 1997; Kazdin, Marciano, & Whitley, 2005;

Tolan, Hanish, McKay, & Dickey, 2002). It is possible that treatments, which do not include therapist support, may be more challenging for parents to implement and thus be viewed as less acceptable. Whilst self-help can overcome many of the barriers associated with participating in PT, such as childcare, transport costs, and work schedules, it is unclear whether parents view self-help as an acceptable form of treatment. Based upon research evidence, parents view self-help PT less favourably than therapist-led PT. However it is unclear which specific factors associated with self-help PT parents view as less acceptable.

The purpose of the current qualitative study was to explore parents' perceptions of the acceptability and perceived barriers of a self-help version of the New Forest Parenting Programme (NFPP-SH; Laver-Bradbury et al, 2010). The therapist-led version of the New Forest Parenting Programme is empirically supported for children with ADHD (Sonuga-Barke et al, 2001; Thompson et al, 2009). This qualitative study formed part of a larger study that comprised of a randomized clinical trial examining the short-term efficacy of the NFPP-SH for children with ADHD (see *Chapter 3*). Results from this trial showed significant improvements on quantitative measures of child ADHD symptoms, and parental competence following NFPP-SH.

Parent perceptions of the acceptability of the NFPP programme when delivered in self-help format without therapist support is less clear, but broader assessment that encompass how treatment is viewed by parents may help to ensure that therapist-led treatments that are already empirically supported can be delivered and are likely to be used when presented in self-help format. The

qualitative study presented here aimed to gain insights into mothers' experiences of using NFPP-SH with the child with ADHD symptoms.

Methods

The study received both Bangor University and local NHS ethical approval.

Participants

In accordance with Strauss and Corbin's (1998) grounded theory approach, participants were purposively identified as being suitable for study inclusion if they were the primary care-giver of a child who was on the waiting list for ADHD assessment at a Child and Adolescent Mental Health clinic in Wales, UK. The child had to be between the ages of 4 and 11 years, and to have scored above the point of clinical concern (PACS; > 17) on the parental account of childhood symptoms ADHD sub-scale (Taylor et al, 1991). Participants were aware that to be eligible to participate in the study, they would need to follow the self-help version of the NFPP. Five mothers meeting the inclusion criteria were recruited over a 3-month period.

All participants were white British. Three mothers were married to the father of the child awaiting ADHD diagnosis and two were single mothers (see Table 7). All mothers were the biological parent of the child in question (four male children and one female child). The mean age of children was 6 years 6 months. Four of the children had siblings whilst one was an only child. The

number of siblings ranged from four to one. Four out of the five mothers had previously attended parenting groups. One mother had attended the Incredible Years parent training programme previously, whilst the three remaining mothers had received generic parent training on child development (e.g. weaning). The four mothers noted that they had attended the groups when their child with ADHD symptoms was at pre-school.

Procedure and data collection

The NFPP-SH is a specialized parenting intervention specifically designed to address the core symptoms of child ADHD. Specific components of the intervention include i) psycho-education about ADHD; ii) improving the quality of parent-child relationship to increase positive parenting, and play; iii) appropriate and consistent limit setting; and iv) attention training to help parents develop the child's attentional capacity. Implementation of the intervention relied on parental engagement in games aimed at helping the child to attend, concentrate, and take turns. Parents were also encouraged to work on their own communication skills by using short commands and eye contact to get the child's attention, keeping calm, and praising their child. The programme was presented as a written manual, comprising six steps, which are completed sequentially over six weeks (i.e. one step per week for six weeks). This commenced with a two-hour individual induction session within the family home (by DD), and although no further face-to-face contact was made with a therapist, short (< 3 minutes) telephone calls were made each week to remind parents to progress onto the steps of the programme.

Table 7. *Participant characteristics for participants in the qualitative study*

Participant	Mother's age	Family structure	Child gender	Child age	No. of siblings	Employment Status	PACS (baseline)	PACS (post-treatment)	PACS (improvement)
Julie	33	Married	Male	7y 6m	4	Unemployed	17	17	0
Anna	31	Single	Male	5y 7m	1	Sales Assistant (part-time)	31	27	4
Carole	25	Single	Female	7y 5m	0	Unemployed	17	15	2
Susan	42	Married	Male	6y 8m	3	Legal Secretary (full-time)	20	19	1
Karen	36	Married	Male	5y 4m	1	Kitchen Assistant & Telephonist (part-time)	34	28	6

Note. PACS = Parental Account of Childhood Symptoms

Although therapeutic input, support, or advice was not given during the weekly telephone calls, parents did provide feedback on the use of the NFPP-SH.

Once parents had completed the NFPP-SH, face-to-face interviews were conducted within the family home between two and 12 weeks following completion of the intervention to elicit parental perceptions of the acceptability and perceived barriers to its use. Interviews were conducted by the first author within the family home once written consent had been obtained, and lasted on average 30 minutes. These were audio-recorded and later transcribed verbatim by the interviewer. Interviews were conducted by the first author (M.O'B, a PhD student), who was independent of the delivery of the intervention programme.

A semi-structured interview schedule (*Appendix 1*) was used to gain insights into mothers' use of the self-help programme. The schedule had been developed and modified by M.O'B and J.H according to issues that had been raised by parents with D.D during the weekly reminder calls while following the self-help programme. Initial questions were open-ended, and were designed to obtain information about the utility of the intervention, to explore the challenges and barriers to implementation, and to identify potential advantages and disadvantages associated with receiving the NFPP programme in self-help format. Mothers were also asked to comment on the effects of the intervention on child and parent behaviour and to evaluate the introduction to the self-help programme, the programme structure, and its overall content. Finally, mothers were asked whether there was anything they would like to add. The interview schedule was modified slightly between subsequent interviews in response to the issues raised

during the interviews and from preliminary analyses that occurred following each interview – thus interviews were based on the grounded theory principles of *theoretical sampling* and the use of *guided questioning* (Strauss & Corbin, 1998).

Qualitative analysis

Following each interview, the audio-recordings were transcribed, and the transcripts analysed by the first author using a grounded theory approach (Strauss & Corbin, 1998). Each transcript was read a number of times and open line-by-line coding was undertaken. Once this was completed, categories were formed from codes that had been grouped together in meaningful clusters. This process was repeated for each transcript, with efforts being made to approach the interview afresh and keep codes grounded in the data. Subsequently, clusters of categories/sub-categories from each transcript were grouped together and examined for shared experience leading to the creation of general categories. Written notes, or memos, were maintained during the research process, and these were used to inform the analysis. Emergent categories identified by the first author were discussed with the research team who drew upon their knowledge of childhood behavioural disorders and ADHD, and child health to aid interpretation of the data. Analysis stopped when it was agreed that theoretical saturation had occurred (i.e. that no new categories would be identified from collecting more data or engaging in further analysis).

Results

Six categories were constructed during the analysis. These are shown with sub-categories in Table 8. Pseudonyms are used throughout.

Table 8. *Categories arising from the analysis*

1) Advantages of self-help intervention
Convenience
Accessibility
Using the self-help manual as a prompt
2) Acceptability of self-help intervention
Changes in parents' perceptions of ADHD and normalising child behaviour
Lack of therapist support and feelings of isolation
Lack of group support and feelings of isolation
3) Perceptions of impact of self-help intervention on child and parent behaviour
Positive changes in child behaviour
Positive changes in parenting self-esteem, confidence, and stress
4) Challenges for mothers
Perserverance with intervention strategies
Ease of using ineffective strategies
Ongoing learning and motivation to change
5) Factors interfering with successful intervention
Relapses
Judgement from others
Input from other services and school
6) Barriers to implementing the intervention
Lack of support
Competing needs of siblings
Time constraints

Advantages of self-help intervention

This section summarizes mothers' views of the perceived advantages of self-help intervention. Key sub-categories arising from the analysis included the convenience of self-help, the accessibility of the self-help programme, and the ability to use the self-help manual as a prompter or reminder.

Convenience

Mothers' perceptions of the convenience of treatment, that is, how suitable, easily accessible, and easy to use a treatment is, is an important issue in terms of motivation to engage, and satisfaction. All mothers felt that receiving the parenting information in self-help format was convenient and helped them to overcome potential barriers, such as arranging childcare, work schedules, and attending scheduled group sessions as is typical in group-based PT. When asked about the potential advantages associated with receiving parenting information in self-help format, mothers reported that one of the advantages of receiving information in this format was that it allowed them to digest it at their own pace, and at a time which was convenient for them:

> Susan: ...I read ... week one, and then I'd just gloss through it again...at night time you know when it was quiet...

This view was also endorsed by Anna, who reported using the self-help manual at times that were convenient to her, such as during the evening time. Anna had also previously attended group-based PT and she commented on the relative convenience of self-help compared with the more traditional mode of delivery:

> Anna: Well that's the good thing about it just being the manual really, because you can do it at your pace…I could be sat there reading it at ten, eleven o'clock at night to make sure that I knew what I was doing the next day… you can recap when…you wanted to…whereas the group, sessions would be at a certain point once a week and that's it and if you happen to be ill on that day and you miss it, then you missed out...

Similarly, Carole mentioned the convenience of having the self-help manual at the start of treatment. As was the case with Anna, Carole had also previously completed group-based PT and pointed out that having the self-manual allowed her to access the information when she needed it, as opposed to waiting for weekly scheduled sessions:

> Carole: When you went on the…group course you didn't get the book until the end. Whereas having the manual to begin with…if you're unsure about anything then you can just flick through instead of having to wait a week to then discuss it with other people.

All mothers spoke about hectic lifestyles associated with family and work commitments, and they were able to use the self-help manual flexibly to overcome such barriers. For example, Karen and her husband both worked full-time and so used the manual at a convenient time for them and to fit around their daily commitments:

> Karen: ...We used to go to bed and read it together and discuss how the day had been...fill the diary in at night...make time that way.

In summary, all mothers felt that one of the advantages of self-help intervention was the convenience it afforded. In particular, having the self-help manual allowed mothers to digest the parenting information at their own pace, at a time that was convenient for them, and which fitted around their lifestyles.

Accessibility

One of the most salient barriers to participation in PT is parents' perception of barriers to attending treatment. These often include logistical barriers, such as travel to and from sessions, childcare, and inflexible work schedules. The accessibility of PT (i.e. how easy PT is to access and use) is therefore an important issue for treatment utilization and adherence. Julie reported on the accessibility of self-help PT, and how having the self-help manual allowed her to access parenting information without the inconvenience of arranging childcare. This was seen as a particular advantage for Julie, who had four school-age children:

> Julie: It was handy that I could do this programme at home...and that I didn't have to go anywhere because now that I have all of the children it's difficult for me to find the time to go to places...so at least with this...there's nothing extra that we have to go out of the house for and find somebody to babysit, so it was handy.

On a related note, Karen felt that self-help intervention allowed her the opportunity to access parenting support without the inconvenience of having to attend group sessions when also working full-time:

> Karen: ...Because I work it's hard for me to...do the parenting groups...it is a good idea and the fact that if you do work there's still some sort of support...

The transportability of the self-help manual was seen as an advantage. The majority of mother's (4 out of 5) gave family members and/or school a copy of the self-help manual and this facilitated a team approach to helping with the child's difficulties:

> Karen: I just think the fact that it's a book you can take it with you somewhere. I've given one to my Mum and Dad so they can have a read of it. I've given one to nursery...so they're aware of it. So people are aware of everything so you're sort of working together as a team rather than just on your own.

In summary, mothers felt that self-help intervention was accessible and circumvented some of the barriers to participating in parenting interventions, such as arranging childcare, and work schedules. Furthermore, mothers saw the transportability of the self-help manual itself as an advantage as it helped foster a consistent approach to managing the child's difficulties.

Using the self-help manual as a prompt

For some mothers, trying to remember the parenting strategies they had read about in the self-help manual was difficult. Maintaining on-going daily routines and trying to integrate newly acquired information into existing routines and busy lifestyles was challenging for mothers. However, they reported they could utilise the self-help manual as a prompt or reminder when struggling to remember parenting strategies. Anna used the self-help manual as a prompter to reassure her that she was implementing the parenting strategies outlined in the manual ("I'm doing everything I should be doing…"):

> Anna: …You get half way through the week and you think 'oh…oh I best double-check that I'm doing everything that I should be doing…and then you go back and you refresh on the weeks before…because obviously leading a busy life you …think 'right ok, that's what we're doing this week', but two days later you think 'what was it again?'…So you can always go back to it….

Similarly, Julie used the self-help manual as a prompt when she felt she was struggling with parenting. Julie felt that the self-help manual was "handy" and allowed her to access parenting information without the inconvenience of having to contact a therapist. Furthermore, Julie felt that having the self-help manual provided some source of comfort when she was struggling with parenting ("At least it's something I can look back on…"):

> Julie: Some days when I feel like I'm struggling…'what am I supposed to do now?', at least I've got something to look back over…go back and re-read things, because it's handy instead of me having to pick up the phone to someone, or '…it's chaos here, what am I supposed to do?'. At least it's something I can look back on, and look up.

In summary, mothers reported using the self-help manual as a prompt or reminder when they were struggling with parenting. In particular, mothers used the self-help manual as a prompter when they were unable to remember or were unsure of parenting strategies.

Acceptability of self-help intervention

This section summarizes mothers views of the acceptability of self-help intervention, that is, the extent to which mother's viewed the intervention as relevant to their needs. Key sub-categories relating to treatment acceptability included the lack of therapist support, and lack of group support, including support from other parents experiencing similar difficulties.

Changes in parents' perspectives about ADHD and normalizing child behaviour

The perceived relevance of treatment to the child's problem is clearly an important issue in terms of outcome, motivation to engage, and overall satisfaction with treatment. Indeed, previous research in the PT literature has reported that parents views that treatment is irrelevant to the child's problems leads directly to dropping out of treatment (Kazdin et al, 1997). Therefore, mothers perceived relevance and satisfaction with the programme are clearly

important issues, which may influence their views of the overall acceptability of treatment. In particular, mothers valued the information contained within the manual regarding ADHD and associated symptoms. For Anna, this helped her to make sense of and normalise her child's behaviour, as well as providing practical suggestions on how best to help her child:

> Anna: I liked the bit where it gave you information on ADHD at the same time as telling you, you know, 'your child is Ok, there's nothing wrong with your child…but if you did this it would help them'.

Many mothers' had struggled with understanding ADHD and its effect upon child behaviour, but later described a better understanding of their child after using the self-help manual:

> Anna: It did help to understand because up to that point you just think 'why are they doing it?'

Karen echoed Anna's comments and described a sense of increased understanding of ADHD and her child's behaviour after using the self-help manual ("it...detailed everything we'd been thinking about...and why things were happening"). Karen also implied that a better understanding of ADHD allowed her to view her child's behaviour from a non-blaming viewpoint:

> Karen: …It…detailed everything we'd been thinking about and all the queries and the questions we had about [son] behaviour and the symptoms and characteristics and why things were happening...Trying to understand

> why is a big…it's a big help. You know, the fact that it's not us and it's not him either…it's a behavioural problem.

Prior to self-help intervention, Karen described feelings of guilt and blame within the parenting role and in particular, she expressed a view that it was her "fault" her child had ADHD. However, following self-help intervention, Karen described feeling more relaxed about ADHD and this helped to ease the feelings of guilt she was experiencing:

> Karen: The fact that it explained ADHD in such detail…made us feel quite relaxed about the whole thing…because… up until that point we'd been feeling quite guilty…about everything and it was all our fault…and it was something we were doing…it was excellent…very informative.

In summary, mother's felt that self-help intervention was highly relevant to their needs and answered their questions regarding ADHD and associated symptoms. Consequently, mother's felt they were able to better understand their child and ADHD.

Lack of therapist support and feelings of isolation

Throughout the duration of the six-week self-help intervention, mothers did not receive any therapeutic input, advice or support from a therapist. Mothers received a brief weekly reminder telephone call to ensure they moved on to the next chapter of the manual. Mothers found the absence of therapist support difficult:

> Anna: The only think I felt was lacking was…yeah you've got your phone call once a week…but you're still on your own…

Karen acknowledged that the self-help manual had been "very helpful", but in the absence of therapist support, she described feeling isolated. In particular, Karen believed that if she had been given the opportunity to discuss the programme with a therapist, perhaps via scheduled fortnightly telephone contact in addition to the self-help manual, she may have had more success with the programme:

> Karen: …Although it's [the manual] been very helpful…we're sort of left on our own again and we…feel quite isolated. I think if you had somebody as well as the book it would be a hundred percent successful…knowing that you've got somebody there that's going to be there every two weeks that you can phone, that you can talk to, you can discuss things with....

Aspects of therapist support that were described as important but were absent in the self-help programme included being able to raise concerns with a therapist:

> Karen: If it could've said 'how's week one gone?'…'How have you found it…have you had any difficulties with it?'

Furthermore, Karen would have welcomed having the opportunity to discuss potential issues with implementing the programme:

> Karen: I think to have somebody there to talk to…fortnightly…would be a big help.

Overall, mothers found the lack of therapist support inherent in self-help intervention a disadvantage of the programme. Specifically, mothers felt isolated without this support and expressed a desire to receive some of form of therapist input in an effort to support them with any potential issues arising as they completed the intervention.

Lack of group support

When questioned about any potential disadvantages of receiving parenting information in self-help format, mothers felt that lack of support from other parent's experiencing similar difficulties was a drawback of self-help intervention. Lack of support from other parents led to feelings of isolation:

> Julie: ...I haven't been able to talk with other...mothers'. Like I say, I've got plenty of friends who have children, but I don't have, I don't know anyone that has a child with ADHD.

This view was also endorsed by Anna, who felt that group support was an essential element, which was absent in the self-help programme. In particular, Anna reported that the opportunity to compare progress with other parents who were sharing similar difficulties within the parenting role would have been helpful. Anna described feelings of uncertainty in the parenting role ("'am I getting anywhere?'"), as she had not had the opportunity to seek support from, and compare progress with other parents:

> Anna: ...I do think that [group support] is the only thing that is missing. I do think it would help because sometimes you feel like you're not getting anywhere, but if you talk to two or three other people that have done exactly the same as you have and you're all progressing at the same pace, you think 'actually, hang on, we are all getting somewhere', rather than just sat here on your own going 'am I getting anywhere, am I...?'.

However, some mothers felt that group support was not necessarily beneficial. Carole, when recalling a time she had previously attended group PT, described feeling apprehensive about attending due to the stigma associated with group PT ("...it was group therapy..."):

> Carole: ...I didn't want to go because it was group therapy and it was just...is my child going to be the worst?

Furthermore, Susan believed that she would not necessarily have found the opportunity to compare experiences with other parents helpful, and she would have felt less confident in a group situation:

> Susan: The only thing I find with groups is...they [parents] say 'oh yes, mine does this and mine does that...' and ...you start to think 'well, am I doing it right?'...So I think that would've been...more confusing...I wouldn't have been as confident doing it.

In summary, some mothers struggled with the lack of group support from other parents experiencing similar difficulties, and felt this was one of the main disadvantages of self-help intervention. Mothers who had previously attended

group PT drew on their past experiences and pointed out that having group support would have helped alleviate feelings of isolation and uncertainty in the parenting role. Conversely, two mothers felt that group support would not necessarily have been beneficial for them.

Perceptions of impact of self-help intervention on child and parent behaviour

The following section summarises mothers' views of the impact of self-help intervention on their child's behaviour, their parenting self-esteem, and on their relationship with their child. Two sub-categories arose from the analysis, namely, positive changes in child behaviour, and improvements in parenting self-esteem following self-help intervention.

Positive changes in child behaviour

All of the mothers noticed a positive change in their child's behaviour over the course of the intervention programme. They commented on specific behavioural changes in their child's behaviour, such as noticing their child was more compliant, responsive, and calmer. Karen attributed these changes in child behaviour to the impact of specific strategies outlined in the self-help manual, such as keeping instructions short and getting down to the child's level:

> Karen: He was just responding to what you asked him…I think the one major thing we noticed was the fact he calmed down quickly…we focused on him and we got down on [son's] level.

Susan noticed an improvement in her child's behaviour at home, and in particular in the bedtime routine:

> Susan: ... [Son] is a different child now...one of the things was he was going to bed and it could've been midnight...and he has actually been asleep and not coming down as much...

Self-help intervention impacted positively on Carole's relationship with her child:

> Carole: We don't argue anywhere near as much as we used to...

Anna commented that keeping instructions short and specific helped her child to focus on her commands, thereby increasing compliance:

> Anna: ...It's things like getting ready in the morning...rather than saying 'come on, it's cold outside...get your coat on', you're just 'coat on' and then you'd be out the door a lot quicker...if you actually stop and think about what you're saying to your child, what do they need to know really? They need to know to put their coat on so you say 'coat on'.

Similarly, Karen reported that she noticed her son was more compliant when she kept commands short and specific:

> Karen: I'd say to [son], when I'm trying to get him ready 'I've got go, I'm going to be late, I've got to do this...and I'm going to do that...' instead of going through all that...just one command - '[son], can you get dressed now please?" not '...you're making me stressed and I've got do this and go and get petrol' because it's an overload of information for him and he

> doesn't know what to pick up from that...that was a good thing, to stop reeling off my life story with him and just asking him to do something. You know, it's still a struggle you know trying to get him to do stuff...but I just say that one command and he you know, he does register that.

When questioned whether they would continue to use the parenting strategies once the programme was over, four of the five mothers replied they would. Julie on the other hand explained she would not to continue to use the strategies mainly due to family circumstances, and in particular, time demands of having five young children, and struggling without partner support (these issues are discussed in more detail below). Overall, mothers reported improvements in child behaviour following self-help intervention and the majority stated they would continue to use the parenting strategies outlined in the self-help manual.

Positive changes in parenting self-esteem, confidence, and stress:

Improvements in parenting confidence and stress are often reported in PT outcome studies (Hutchings et al, 2007; Webster-Stratton, 1998). Mothers in the current study also reported improvements in theses areas of functioning. For example, Carole reported improvements in her confidence following self-help intervention:

> Carole: ...Doing the parenting course I'm a lot more confident because you do become more confident when you see something working.

Additionally, Susan reported feeling less stressed following the intervention:

Susan: I was so stressed with him. I mean I still am, but not as much.

And Karen reported improvements in her ability to remain calm when interacting with her child, which was a specific treatment target highlighted within the self-help programme:

Karen: I was calmer.

All mothers in the current study reported difficulties with keeping calm during stressful interactions with their child. Mothers were instructed to work on keeping calm during child misbehaviour and were encouraged to communicate calmly with their child. Karen noticed a positive difference in her interaction with her son when she used this approach:

> Karen: ...You do notice a difference if you actually make the effort to come in, sit down ...'[son] can you do this for mummy?' whereas [son!]...You get wound up, they're not listening to you because I suppose their attitude is 'well you're in another room so we're not going to listen anyway'. So yes, that was big...thing...

In summary, self-help intervention led to improvements in parenting confidence and stress. Mothers also reported that they adopted many of the strategies outlined in the self-help manual. In particular, successful strategies included keeping instructions short and specific, which helped to increase child compliance, playing with their child, and communicating with their child in a calm way.

Challenges for mothers

This section reviews the challenges mothers reported when implementing self-help intervention. Key sub-categories arising from the analysis was perseverance with intervention strategies, ease of using ineffective parenting strategies, and ongoing learning and motivation to change.

Perseverance with intervention strategies

Perseverance with implementing intervention strategies was a challenge for the mothers, in part because they were required to refrain from using what one parent considered "lazy" parenting methods, such as engaging in harsh and critical parenting (e.g. shouting commands), and instead adopt a new style of parenting:

> Julie: …it's just a lazy way but it is easier…to just…tell him off…it's just easier to scream and shout…

Furthermore, Karen found it difficult to maintain the strategies after week four as she felt the self-help manual did not offer any additional strategies. This was after an initial positive response to the self-help intervention:

> Karen: …I did think you know, when I was doing it 'oh this is great you… we seem to be getting somewhere'…but…after week four there were no other strategies and you find it hard to keep it up.

Parental expectations regarding the potential impact of intervention on child behaviour during the beginning phase of the intervention were high and Anna reported expecting "miracles instantly":

> Anna: ...it was explained 'you don't get instant miracles. It's a long, hard process'...I kept persevering, and persevering...and...things from week one is starting to work...slowly.

In addition, mothers found implementing new parenting methods challenging as this involved a change for both parent and child. Changes in parenting strategies often led to a temporary increase in the severity of child difficult behaviour as the child tested the new routine:

> Carole: I mean, she [daughter] was testing me for the first two weeks but I refused to rise to it...she realised I wasn't going to rise to her...whether you're hyperactive or not, every child tests a new routine.

Despite difficulties persevering with the intervention strategies, Anna reported persisting with the intervention, which she acknowledge was leading to slow changes in her child's behaviour:

> Anna: ... I kept persevering, and persevering...we're still trying with the manual...and it is having some effect...slowly.

Carole also commented on how she persisted with implementing the new parenting strategies:

> Carole: ...I kept persisting...and yes I had minutes when I was like pillows on both ears when she's screaming...it was difficult because you're not just changing her routine, you're also changing your own routine.

In summary, one of the foremost challenges mothers faced was persevering with intervention strategies. Specifically, mothers struggled with changing their existing parenting style in favour of alternative parenting strategies. The realisation that changes in child behaviour occurred more slowly than had been anticipated also contributed to the feeling of having to persevere with the self-help programme. Changes in routine as a consequence of adopting new parenting strategies also led to an increase in the severity of child problem behaviour, and once again, mothers had to persevere and commit to continue using the strategies.

Ease of using ineffective parenting strategies

All mothers reported utilizing ineffective parenting strategies because it was "easier", despite having access to the self-help intervention, and many reported feelings of guilt arising from continuing to use less effective methods:

> Julie: ...it's just a lazy way but it is easier...to just...tell him off...it's just easier to scream and shout. I know it's wrong but...

Susan echoed Julie's comments:

> Susan: ...The main thing is...not shouting and screaming, which you know, I've done...then I've thought 'that's not what I wanted to do'...I feel awful....

Similarly, Karen reported that she still used less effective parenting strategies on occasion:

> Karen: ...The not yelling from a different room, which we...still do, and we are guilty of....

Despite having access to self-help parenting information, some mothers acknowledged they continued to use less effective means of dealing with child problem behaviour, such as "shouting and screaming". Upon reflection, mothers expressed feelings of guilt arising from using a harsh and critical parenting style with their child.

Ongoing learning and motivation to change

Mothers acknowledged progress made (e.g. Anna: "...it is having some effect") and simultaneously voiced the realities of continuing to persist with the intervention programme (Anna: "...when it didn't slot into place in the first week, I thought 'ooh'...we're still trying with the manual"), and how change would occur slowly. Anna voiced high expectations at the beginning of the programme, but as time went on, she realised that changes in child behaviour would occur over the longer-term:

> Anna: When it first started I thought it was absolutely fantastic…I though 'great, we're really going to get somewhere'… you expect miracles instantly…I expected everything to go amazingly well… and when it didn't slot into place in the first week, I thought 'ooh'…things from week one is starting to work…slowly

Motivation and determination to change were raised as key factors underlying successful intervention:

> Carole: …I kept persisting…people…need to go into this course going 'I want to make a difference'. If they don't want it enough it's not going to work at all.

Perseverance with intervention strategies was the foremost challenge mothers reported and they commented on their ongoing struggles to change their parenting style in favour of the parenting strategies outlined in the self-help manual. Mothers commented on their high expectations regarding the impact of intervention during the initial phase of the self-help programme, but came to realise there were no "instant miracles". However, mothers expressed that they would persist with the intervention, whilst acknowledging that changes were occurring "slowly".

Factors interfering with successful intervention

This section focuses on factors that mothers purported interfered with successful intervention. Three sub-categories were identified, namely, relapses in child behaviour, judgement from others, and input from other services and school.

Relapses

Parents found relapses in child behaviour — triggered by the child spending time with childcare provides who were not implementing the programme, or disruptions of routine — very discouraging. Parents felt dispirited when relapses occurred and felt it was "hard work" getting their child "back on-track" after a relapse. Anna explained that her parents were not implementing the self-help programme, and consequently, after spending time with his grandparents, her son's behaviour deteriorated:

> Anna: …We were still following the manual, but it's just taking a few steps back **all** the time…and reinforcing when we got back…it was hard work…

Spending time with caregivers who were not implementing the programme led to an inconsistent parenting approach, and once again, Anna explained that she had to spend time revisiting areas she had covered previously after her son had spent time with his grandparents:

> Anna: If you turn your back for two seconds they're [grandparent's] letting him get away with everything and…you have to back-track then and go over what you've already done.

Karen on the other hand claimed that her son's behaviour deteriorated due to disruptions in his routine at school:

> Karen: We thought we were progressing but then he [son] took huge backward steps… He missed the routine at school we think. They were rehearsing for the play and everything like that…

Judgment from others

Judgment from others interfered with parents' efforts to use the programme. Childcare providers, such as grandparents, denied the child's difficulties and therefore refused to use the self-help programme. This undermined parents' efforts to implement the programme as it led to a general lack of support for the intervention from grandparents and friends, as well as leading to an inconsistent approach to parenting. Parents expressed feeling disheartened and frustrated when judged by others:

> Anna: You go to my parent's house and…they think it's a load of clap-trap, they don't believe in it and… they just see…[son] as this little angelic little boy that never does anything wrong… they're just against the idea that there's anything wrong with their grandchild… they're scared that labels are going to be put on our children so they think that if they ignore problems they'll just go away.

Karen echoed Anna's comments and described a general lack of support for the intervention from her own mother. This engendered conflict over the need for treatment between Karen and her mother:

> Karen: … my Mum's quite blinkered you see because she doesn't think that he's got a problem…'…oh there's nothing wrong with, what's the matter, why are you…taking him here, why are you taking him there?'…But they don't see… she still says 'oh I don't know why you're doing this to him' you know like we're doing something to him. I say we're not doing anything to him….

Similarly, Carole explained that she felt "disheartened" when she faced criticism from her friends regarding her daughter's behaviour:

> Carole: …It can get quite disheartening when you're trying so hard and everybody else is telling you you're failing… everybody else just keeps looking at me and going 'she's a seven year old, she shouldn't be doing this, she shouldn't be doing that' and it's like…she's part of CAMHS so if there wasn't a problem then she wouldn't be seeing professionals. So, it was annoying getting belittled so much you know?

Input from other services and school

Input from other services, such as child and adolescent mental health services, and school also negatively affected parents' implementation of the programme. Parents expressed feelings of exhaustion and confusion after their child had received input from other services and school—input that was often contrary to the goals and ethos of the self-help programme:

> Anna: He's struggling in school anyway because they, they just seem to shout at him all the time and not explain why they're shouting at him… so…he's upset, cross, angry when he gets home, so it takes me forever to calm him down and get to the bottom of it all… and by the time you've done that you're so worn out it's hard to…and then when he starts misbehaving you think 'right, ok follow the manual, follow the manual' totally worn out...

Carole clearly described that the discrepancy between the self-help intervention, which she was following within the home, and the programme the school were following, and this left her feeling confused, although she did try to find some "middle ground" in an effort to combine both programmes successfully:

> Carole: … It's slightly difficult because the school were doing something to try and get her to portray her feelings …so it sort of…it didn't clash…but it sort of left me a little bit confused and then I'd go to the teacher 'Ok, what are you doing? Because this is what I'm doing', and then try and find some like middle ground basically.

Overall, relapses in child problem behaviour, judgement from family and friends, and input from other services and school all interfered with mother's ability to implement the self-help intervention successfully.

Barriers to implementing the self-help intervention

This section summarizes parents perceived barriers to implementing the self-help programme. Three sub-categories arose from the analysis, namely lack of support from family and friends, competing needs of siblings, and time constraints.

Lack of support

Lack of support from family members and friends was a major barrier to implementing the self-help programme. Reasons for lack of support included disagreement from partners with the parenting strategies highlighted in the self-help manual, and other family members denying the child's difficulties. The effects of lack of support impacted upon mothers both practically and emotionally. Mothers felt it was much more challenging to implement the strategies on a day-to-day basis without this support. For example, portraying a consistent parenting style to the child was challenging if a partner disagreed with the self-help programme, and this made Julie feel as though she was "fighting a losing battle". Lack of support also had an effect on the parent's capacity to cope emotionally with the demands of implementing the programme. Many mothers reported feeling isolated, lonely, and discouraged to continue implementing the programme (i.e. "I just give up half the time"):

> Julie: …Me and my partner don't agree with…everything…so it's conflicting, so I just give up half the time, it's easier to just say 'oh ok then we'll do it your way'…he just doesn't agree sometimes with the way I do things...

Carole felt that implementing the programme was more difficult because of a general lack of support from her family and friends:

> Carole: I think it's harder because…I'm the only one that's actually been seeing the course through…

Susan also explained that her husband did not support her in implementing the self-help programme. Had she received support from her husband, Susan believed she would have had more success with the programme:

> Susan: I think if we'd been doing it together…I think…it would've worked out better.

Logistical factors, such as living away from her family, prevented Carole from accessing the support she would have liked when implementing the programme:

> Carole: …the time that she [mother] does get to get down here it's far and few between at the minute…But then again, if you've got a decent enough family you know…you're going to be Ok. I mean, I'm a single mum that's disabled…I have a couple of friends that come around once in blue moon…

Some mothers reported feeling emotionally isolated whilst completing the programme and upon reflection, believed that their situation would have been much improved if they had received support from their family:

> Carole: ...My situation felt lonely... if I'd have been...surrounded by all my family and basically...forced it upon them I would've been Ok...

Competing needs of siblings

All parents who had more than one child (4 out of the 5 interviewed) felt that having siblings made it more challenging to implement the self-help programme successfully. On a practical level, mothers with other children said they found it difficult to find time to focus only on the child with ADHD when their other children also needed attending to:

> Karen: ...You just find it hard to...keep up the strategies that you've been taught and it is hard with having a little one as well.

Julie echoed Karen's comments and claimed that she would have been able to implement the programme more successfully if she had only her son to contend with:

> Julie: ...If I'd just had [son] I would've stuck to it...the only reason I'm not able to stick to things is because I have the others [siblings]...it's embarrassing to say but I just don't have the time...and now that I have three [children] under three it's more difficult to give time to [son] when the other three constantly want something...

Julie described a situation where each siblings needs are constantly competing with the other, and this made it difficult to focus on the child with ADHD:

> Julie: …I know I need to give attention just to the child with ADHD, but because we have other children that don't have ADHD but they want attention as well…but if we have to give [son] all of the attention, they then play up…

Anna also felt that having two children made it difficult to implement the intervention, and she also claimed that the intervention would have been more successful if she had the time to focus solely on her son:

> Anna: My only problem was having the two children…I think if [son] was my only child and it was me, the manual and [son] it would've worked fantastically…but there's always [sibling] trying to get in there, trying to help…

Time constraints

Time constraints were a significant barrier to implementing the programme. Whilst many parents spoke about the advantages of self-help as a mode of delivery (see Category 1: advantages of self-help intervention), lack of time to implement the strategies remained an issue. Often, other commitments, such as extra-curricular activities, scheduled appointments, full-time work commitments, and daily chores thwarted parent's attempts at implementing the programme:

> Carole: …On the odd occasion it became difficult…like when I've had appointments all day and she's been at school and I've had to go and do the weekly shop after school, and so we're not at home… [daughter] goes to after school classes as well you see… I mean it's one thing to have the

> parenting technique, but you also don't want to go 'well you can't go to your after school clubs because we're starting this'... we managed to don't get me wrong...There was just like I said that one...or two days a week that things may have got a bit chaotic, but that wasn't every week...

For Karen, trying to implement the self-help programme was particularly difficult as she also worked. Karen listed her daily routine, which included attending work, caring for her two children, as well as general household chores and questioned where it was possible for her to fit in the self-help programme amidst a hectic lifestyle. Karen expressed a discord between what she is able to achieve in "reality" taking into consideration all other commitments, and an ideal situation where she is able to implement the programme without any time constraints:

> Karen: ...We're up...and out by six in the morning...and I don't get in until six at night...how are you supposed to between six and eight at night...feed them, bath them, play with them, do his homework, and let them have time on their own in two hours? And clean and try and run the house...and...reality I don't know how... it's hard to fit everything in...I suppose a professional will probably say...well you have to put your children first and play but in reality...

In summary, mothers described three main barriers to implementing the self-help programme, namely lack of support from family members and friends, the competing needs of other siblings, and time constraints.

Discussion

The current study sought mothers' perceptions of the acceptability of self-help parent training, and perceived barriers to implementing self-help.

For the mothers in this study, the convenience and accessibility of self-help was seen as advantageous. As mothers were questioned about the perceived relevance of the self-help intervention to their child's difficulties, the impression was gained of a group of mothers who had previously struggled to understand ADHD as a disorder (i.e. symptoms of the disorder) and its potential causes. Mothers questioned "why" their child behaved in certain ways, and who was at "fault". Following self-help intervention, mothers reported an increased understanding of the disorder, which led to a change in perspective about ADHD, and helped them to normalise their child's behaviour as well as providing them with a framework to tackle child problem behaviour (..."if you did this [the strategies] it would help them"). One aspect of the self-help programme mothers found challenging was the lack of therapist support, and many reported feelings of isolation due to lack of contact with a therapist. Similarly, mothers reported feeling isolated without the support of a group and believed this was the "only thing missing" from the self-help programme. Significant challenges for mothers included persevering with the intervention strategies, in part due to the ease of continuing to use ineffective parenting strategies, but also due to high expectations of treatment, and the reality of having to persist with the intervention over the longer-term in order to achieve change. Factors interfering with mothers' efforts to implement self-help included relapses in child behaviour, and

disagreement and conflict with friends and family members over the need for and value of treatment. Barriers to implementing self-help intervention included lack of mothers' support systems, competing needs of other siblings, and time constraints. Despite a number of significant challenges and barriers to implementing self-help, mothers reported benefits of the programme on child behaviour and improvements in parenting confidence and stress.

Mothers noted a number of important benefits arising from self-help intervention. In particular, mothers reported an enhanced understanding of ADHD, and stated that self-help intervention helped to begin to normalise child behaviour, and diffuse feelings of guilt experienced within the parenting role. Taken together, this helped mothers achieve a positive change in their perspective of ADHD. Providing mothers with psychoeducation about ADHD appeared to be particularly important as mothers directly attributed positive changes in perspective to their enhanced understanding of the disorder, and overall satisfaction with the programme (e.g. "I thought it was ideal…just what we needed"). Perhaps more importantly, self-help intervention modified the causal attributions mothers offered for ADHD behaviours from implying a sense of controllability/purposefulness on the part of the child ("why are they doing it?"), to an external "behavioural problem", where neither the child nor parent was at "fault" ("it's not us and it's not him either"). Parental causal attributions for child behaviour have been implicated as predictors of engagement with PT (Morrissey-Kane & Prinz, 1999), whereby mothers' who believe they have no role in their child's problem behaviour have low expectations of the usefulness of PT, and

lower satisfaction ratings overall. Our results suggest that developing a better and more accurate understanding of ADHD may change the causal attributions parents offer for ADHD behaviours, and may impact upon parents' engagement and satisfaction with parenting materials.

Mothers perceived the self-help programme as highly relevant to their needs and "very informative". Previous research has reported that the perceived relevance of treatment impacts upon satisfaction with treatment (Kazdin, 1997). The current results are consistent with this. Furthermore, it is likely that mothers' increased knowledge of ADHD impacted positively upon the acceptability of self-help, as previous research has demonstrated a positive relationship between knowledge of ADHD and more favourable opinions of parent training (Corkum, Rimmer, & Schachar, 1999).

One aspect of self-help intervention mothers found less acceptable was the lack of therapist support. This is consistent with previous research, which has shown significantly higher dropout rates from self-help, and lower satisfaction ratings compared with intervention including therapist support. One mother explained that she would have welcomed the addition of therapist support via the telephone. Telephone and e-mail delivery of treatment services standout as a feasible and potentially efficacious way of augmenting written self-help. A recent clinical trial evaluating self-help PT reported that the addition of structured telephone consultations with a therapist was effective at optimising programme completion (Stallman & Ralph, 2007), and previous studies have also shown that minimal levels of therapist support enhances outcomes for children and parents

(Markie-Dadds & Sanders, 2006a). It is likely that the addition of therapist support would improve parental perceptions of the acceptability of self-help. Further research will need to be conducted to investigate parents' views on the acceptability of self-help plus therapist input.

Many of the issues raised by mothers can be considered in the light of non-specific therapy factors identified in previous research as contributing to treatment outcome. Morrissey-Kane and Prinz (1999) have identified expectancies for treatment as an important influence on parental engagement and satisfaction with parent training, and mothers did raise issues contributing to treatment expectancy. For example, expectations for treatment in the current study were high with one mother reporting that she "expected everything to go amazingly well...you expect miracles instantly". Although it may be that mothers' beliefs developed retrospectively to treatment, any such beliefs existing prior to or during treatment could affect engagement with the intervention and overall feelings of satisfaction with treatment. Indeed, parents' pre-treatment expectancies have been shown to be important predictors of perceived barriers to treatment (Nock, Phil, & Kazdin, 2001). For example, Nock and colleagues (2001) showed that lower parental expectancies for group PT were related to higher perceived barriers, including viewing treatment as not relevant, too demanding, and stressors and obstacles associated with coming to treatment. Addressing parents' pre-treatment expectancies may be particularly important in self-help where parents are required to implement and maintain changes in parenting without the support and motivation of a therapist. Although factors

relating to treatment expectancies were addressed as part of the current intervention during the induction session with mothers, perhaps a discussion of the typical phases of treatment (Spitzer, Webster-Stratton, & Hollinsworth, 1991) may be useful to help maintain motivation with self-help intervention.

The "struggle and work through model" to describe the experience of parents attending group PT proposed by Patterson and Chamberlain (1994) may also be useful to explain the experiences of mothers in this study. Specifically, the models state that parents pass through varying phases typified by experiencing feelings of hope and despair with the process of behaviour change, and finally realization of the hard work and motivation required to effect change in parenting and child behaviour. The accounts of mothers in this study largely concur with this model. Nevertheless, these mothers were persistent and described persevering with self-help intervention, suggesting high levels of motivation.

In terms of perceived barriers to implementing self-help, the experiences of mothers in the current study fit with the existing literature on barriers-to-treatment. Whilst self-help eliminated a number of issues considered to be barriers to treatment, such as work schedules and travel to and from clinic settings, mothers did report time constraints, and competing needs of other siblings as significant barriers to implementing self-help. As noted previously, time demands are cited as one of the most significant barriers to treatment (Spoth & Redmond, 1995), and the experiences of our mothers are consistent with this. Similarly, the number of children in the family has been shown to impact negatively on participation in group PT, and increases parents' time demands (Spoth &

Redmond, 1993a). Clearly, these barriers to treatment are still present when self-help is employed as the mode of intervention delivery. It may be that these barriers need to be addressed prior to self-help intervention.

All mothers in this study reported that following the self-help programme provoked disagreement and conflict (e.g. between parents, and parents and relatives) over the need for and value of treatment. Lack of social support was perceived as a significant barrier to implementing self-help. Interpersonal resources, including parent support systems are likely to impact upon whether parents view treatment as burdensome and demanding. In this study, mothers reported feeling discouraged to continue with intervention without sufficient support from family and friends, and believed that making changes would have been easier if their partners, friends, and family had engaged with and were implementing the self-help material. This is consistent with recent findings from a study investigating parents' perceptions of a group parenting programme, where Patterson and colleagues (2005) reported that parents had difficulty maintaining the behaviour changes they had achieved in the absence of partner and family support. Lack of social support has been associated with less therapeutic change among children, and greater perceived barriers associated with treatment (e.g. viewing treatment as demanding, and stressors associated with coming to treatment) over the course of PT (Kazdin & Wassell, 2000). Factors such as lack of support are likely to exert a greater influence in self-help due to lack of therapist involvement.

Limitations

The study was limited to a small number of participants, and only mothers who had completed the six-week self-help treatment were included in the study. A future study recruiting parents who chose to discontinue treatment could provide particularly useful insights into the factors that make self-help intervention difficult or unacceptable to some parents. Both the small sample size and the lack of corroboration from similar studies suggest this analysis is best viewed as exploratory.

Another limitation was that mothers' interview data was based on retrospective report, and relied on mothers being able to recall their perceptions after completing self-help intervention. Moreover, issues seen as important retrospectively may differ from those most salient at different times during treatment. It may be worth considering parents' perspectives at various time points throughout treatment in an effort to investigate parents' acceptability at all stages of delivery.

The majority of the mothers in the current study had previous experience of using parenting programmes. This may have influenced mothers' perceptions of the acceptability of the self-help parenting intervention used in the current study, as past parenting resource predicts inclination to enrol in future parenting skills intervention (Spoth & Redmond, 1995). Examining the perceptions of 'naïve' parents who have not previously accessed parenting programmes may be particularly important for self-help PT, especially given that self-help PT could

potentially be utilised as the least intrusive and basic level of intervention for families on waiting-lists for specialist clinical services.

Conclusions

There remains much to be known about what factors may contribute to the acceptability of self-help. Factors known to predict parental acceptability and engagement in group PT, such as expressed emotion, parental attributions of child behaviour, and parenting self-efficacy need to be examined in self-help. For example, low parental self-efficacy—which may be associated with avoidance of challenging tasks and a lack of problem-focused coping—may exert a greater effect in self-help without the motivation and support of a therapist. This may be revealed in a perception that self-help is too demanding, with resulting low treatment acceptability because of the effort required to change parenting behaviour. Furthermore, potentially important predictors of treatment acceptability in an approach that relies on 'parents as therapists' could include family communication and collaboration, and an ability of the parents to consistently incorporate a program into their daily lives. Establishing these predictors would assist therapists to target families who are likely to benefit from self-help. Although treatment outcome measures (e.g. symptom reduction, improvements in adaptive functioning) are clearly important, the utility of treatment may depend on the extent to which it can be delivered as well as subscribed to parents.

Many studies have examined the efficacy of self-help PT for childhood behavioural disorders, but parents' perceptions of the acceptability of self-help have not been sought consistently nor are well understood. This study was undertaken to explore these issues. There is a shortfall of qualitative research in the literature examining parents' views on the acceptability of self-help PT. Future research will need to be conducted to extend the current findings.

CHAPTER 5

Self-help parent training for children with ADHD:

Predictors of intervention outcome

Abstract

Objective: The present study explored predictors of intervention outcome for families of clinically referred children with ADHD symptoms, who participated in a randomized controlled evaluation of a self-help parent training programme—The New Forest Parenting Programme – Self-Help (NFPT-SH).

Method: Participants in the study were 24 children whose parents had been randomly allocated to receive the self-help intervention. Child and parent variables examined in the predictor analysis were child ADHD symptoms, parental ADHD, parental depression, parenting satisfaction and efficacy, and number of children in the family.

Results: Predictor analysis revealed that children with more severe pre-treatment ADHD symptoms made fewer treatment-related gains following self-help intervention. Analysis revealed a significant effect for parenting symptoms of depression in predicting intervention outcome, whereby parents with higher levels of depression had children with more severe ADHD symptoms following intervention. All other predictor variables, including parent ADHD symptoms, parenting efficacy and satisfaction, and number of children in the family did not significantly predict intervention outcome.

Conclusions: Children with more severe pre-treatment ADHD symptoms benefit less from a self-help parenting intervention. High levels of parental depression limit the improvement shown by children with ADHD after self-help. Other risk factors (i.e. parental ADHD, parenting self-esteem, and number of children in the

family), showed no predictive effects, implying that self-help parenting intervention was successful despite the presence of such risk factors.

Interventions for childhood ADHD

Parent training (PT) interventions have been identified as successful interventions for childhood ADHD (Fabiano et al., 2009; Pelham, Wheeler, & Chronis, 1998; Pelham & Fabiano, 2008). Evidence from randomised controlled trials demonstrates improvements in parent-child interaction (Webster-Stratton, 1998), child compliance and on-task behaviour (Sonuga-Barke, Daley, Thompson, Laver-Bradbury, & Weeks, 2001); and in parent-reported child ADHD symptoms and conduct problems (Bor, Sanders, & Markie-Dadds, 2002; Jones, Daley, Hutchings, Bywater, & Eames, 2007) following PT intervention.

Although PT is effective in treating a variety of child behaviour problems, not all families benefit from this form of treatment, and it has been reported that even the most successful PT interventions are effective for only about two thirds of participating children (see Webster-Stratton & Hammond, 1997). The effectiveness of PT is believed to vary based on participant characteristics, for example socio-economic status, single parent status, and young parent age. The differential effectiveness of PT has led researchers to examine a variety of child and parent variables that may predict treatment response, and studies have identified a varied set of child, parent, and demographic/familial variables that are associated with treatment outcome. A better understanding of which families can be expected to respond to treatments (i.e. identification of predictor variables; Kraemer, Wilson, Fairburn, & Agras, 2002) will allow clinicians a more tailored choice of treatments, and outcome research will be improved by

investigating which subgroups show particularly good (or poor) treatment response (Hinshaw, 2007).

Predictors of treatment outcome

Identifying empirically supported treatments for any childhood psychiatric disorder represents a significant advancement in intervention research, particularly for a condition as persistent as ADHD. Nevertheless, questions concerning "For whom does this treatment work?" and "When is this treatment not enough?" (Bretsan & Eyberg, 1998, p.187) have been assigned high priority in recent years in child psychotherapy research (Owens et al., 2003). Answering these questions will move intervention research beyond basic questions of efficacy toward identifying those who are most likely (or least likely) to benefit from a specific intervention, when delivered under specific circumstances.

In intervention research, variables that specify for whom a treatment is effective are either predictors or moderators of outcome (Kraemer et al, 2002). Beauchaine and colleagues (2005, p. 372) provide a definition of predictor and moderator variables by stating "both predictors and moderators are variables present at baseline that alter treatment response". However, predictors alter treatment response regardless of treatment condition, whereas in contrast, moderators differentially predict outcome across treatment groups, or across treatment and control groups. From a clinical perspective, identifying predictors and moderators of outcome is important as they can help identify with greater accuracy the types of children and families for whom an intervention may be

suitable, or on the contrary, for whom additional therapeutic input may be required (Gardner, Hutchings, Bywater, & Whitaker, 2010).

Few studies have examined predictors of outcome for PT interventions for children with ADHD, and to our knowledge, no studies have yet examined predictors of outcome for self-help PT in this population. However, the child conduct problem literature has received much more attention in terms of predictors and moderators of PT outcome. Given the highly co-morbid nature of ADHD with conduct problems (Biederman, Newcorn, & Sprich, 1991), as well as the finding that some psycho-social PT programmes targeted at conduct problem children work equally for children with co-morbid ADHD (Pelham et al, 1998), we have drawn on this prior literature when examining potential predictors of PT outcome for children with ADHD. Based upon the limited ADHD literature thus far, and the PT literature for child conduct disorder, a number of candidate variables emerge as predictors of treatment outcome. Putative predictor variables can be broadly categorised into three groups, namely, child-, parent-, and family-specific predictors, and each are discussed in turn below.

Child-specific predictors and moderators of intervention outcome

Candidate child-specific predictors and moderators of outcome that have emerged from the PT literature include gender, age, symptom severity, and co-morbidity. Child age has been investigated in predictor and moderator analyses with mixed findings. A recent meta-analysis of 63 peer-reviewed studies

evaluating the efficacy of PT, discovered that child age did not systematically influence outcomes to PT (Lundahl et al, 2006). Van den Hoofdakker (van den Hoofdakker et al., 2010) and colleagues also examined child age as a potential moderator of PT outcome in a sample of children with ADHD and showed that child age played only a trend-level significant moderating role in determining treatment effects on ADHD symptoms. Specifically, ADHD symptoms decreased more for older children, compared with younger children after PT.

More severe pre-treatment child behaviour has been linked to negative outcomes following PT (Kazdin & Wassell, 2000), and the effect of symptom severity on treatment response has been investigated. In a recent meta-analysis of PT for child externalizing behaviour, Reyno and McGrath (Reyno & McGrath, 2006) reported that severity of pre-treatment child behaviour problems was a moderate predictor of treatment outcome (*ES* = .40). Owens and colleagues (2003) also reported that children with more severe pre-treatment ADHD symptoms displayed poorer response to both medication management and behavioural interventions, suggesting that children with more severe symptoms show less gains following PT.

The presence of child co-morbidity has also been investigated as a predictor and moderator of treatment outcome. Beauchaine and colleagues (Beauchaine, Webster-Stratton, & Reid, 2005) assessed the predictive effects of child co-morbidity on 1-year outcomes for a sample of 514, 3-8 year old children treated with empirically supported PT interventions for conduct problems. Results showed that child co-morbid anxiety/depression was a significant predictor of

treatment response. Specifically, higher pre-treatment scores on this variable were associated with larger treatment response. This is consistent with reports that some children with co-morbid conduct problems and depression are more responsive to treatment than children without (e.g. Beauchaine, Gartner, & Hagen, 2000).

Parent-specific predictors and moderators of intervention outcome

Candidate parent-specific predictors and moderators of outcome that have emerged from the PT literature include parental psychopathology, stress, and parenting competence. In terms of parental psychopathology, maternal depression has been the most researched predictor and moderator variable in the PT literature. Overall, results have been mixed with regards to the effects of pre-treatment depression on response to PT intervention. Results from the MTA study (MTA Co-operative Group, 1999) reported that children of parents with mild depressive symptomatology showed worse response to both medication management and behavioural intervention, compared with children of parents without depression. Similarly, Reyno and McGrath (2006) showed that maternal psychopathology was a moderate predictor of treatment outcome, and that mothers with depression demonstrated poorer response to PT. In contrast, Gardner and colleagues (2010) reported that children of more depressed mothers fared better in terms of conduct problem outcomes, following a 12-week PT programme. These results were commensurate with those reported by Beuachaine and colleagues (2005), whose findings from pooled data of six Incredible Years PT randomized controlled trials showed that maternal depression significantly

predicted treatment response, whereby a higher pre-treatment score on maternal depression was associated with larger treatment responses. More recently, van den Hoofdakker (2010) showed that maternal ADHD symptoms, and depression did not significantly predict response to PT for parent-reported child ADHD symptoms and behavioural problems.

Parental stress, and parenting satisfaction and competence have also been examined in predictor and moderator analyses. McTaggart and Sanders (2007) discovered that pre-treatment levels of parent-reported stress and parenting satisfaction did not affect parents' capacity to change their dysfunctional parenting style following group PT. However, van den Hoofdakker (2010) demonstrated that parenting self-efficacy moderated treatment success following behavioural PT, and this effect was present for both parent-reported child ADHD symptoms and behavioural problems. Mother's with positive cognitions about their parenting capabilities, showed superior treatment effects of PT, while for mother's who reported low self-efficacy, this effect was absent.

Family-specific predictors and moderators of intervention outcome

The socio-economic status (SES) of a family has been reported to effect treatment response to PT with mixed results. McTaggart and Sanders (2007) showed that family income was unrelated to parents' ability to change their parenting style following PT. Similarly, Gardner and colleagues (2010) reported no significant moderator effects for low income, implying that families with this disadvantage were likely to do just as well following PT for child conduct

problems. In contrast to these results are those by the MTA (MTA Co-operative Group, 1999), which reported that baseline poverty was a significant moderator variable. Comparable findings was reported by Lundahl and colleagues (2006), where a meta-analysis of PT for conduct problem child revealed that family adversity undermined positive changes in parental behaviour (i.e. dysfunctional discipline style).

An additional family-specific predictor variable, which to our knowledge has not been examined in previous research, is the number of children in the family. Previous research has shown that the number of children in a family interferes with participation in parent behavioural therapies (Spoth & Redmond, 1993a; 1995), possibly due to the increased time demands associated with having more than one child. We therefore chose to examine number of children in the family as a predictor variable in the current study.

In the only study to examine predictors of intervention outcome in a sample of pre-school children with ADHD, Sonuga-Barke and colleagues assessed the impact of maternal ADHD symptoms on the effectiveness of a PT programme (Sonuga-Barke, Daley, & Thompson, 2002). Results showed that high levels of maternal ADHD symptoms was associated with poorer intervention outcome, and children of mothers with high ADHD symptomatology showed no improvement in ADHD symptoms after PT. Sounga-Barke and colleagues (2002) suggest that addressing maternal ADHD symptom may be a prerequisite for the success of PT for ADHD children.

Present study

The current study builds upon the findings from the original evaluation of the NFPP-SH programme as a stand-alone intervention (see *Chapter 3)* by exploring potential predictors of change in parent and child. Analyses are performed on intervention group data only as the study's main aim is to examine mechanisms of intervention-related change. Specifically, the main aim of the study is to examine candidate predictors of intervention outcome. Predictors were selected based on findings reported in the PT literature, and from the limited ADHD treatment literature. Severity of child ADHD symptoms was the one child specific predictor variable chosen. Parent variables included ADHD symptoms, depression, parenting satisfaction and efficacy, and number of children in the family.

Method

Participants

Participants were parents and children who were randomised to the intervention arm of the original intervention study evaluating the New Forest Parent Training Programme - Self-help (NFPP-SH; see *Chapter 3*). Children were recruited over a 29-month period via local child and adolescent mental health services. Children had been referred to the child and adolescent mental health service for ADHD assessment and were on the waiting list for an assessment when recruited into the trial. The 24 families included in the current sample had all previously met eligibility criteria for inclusion in the main randomised controlled trial: i) child

aged between 49 and 132 months; and ii) child scored 17> on the PACS structured clinical interview.

Ninety-two percent of the current sample were mothers (mean age 445.77 months [SD=95.29]). The mean age of the child was 87.25 months (SD=19.91), and they were predominantly male (79%). The mean number of children per family was 2.42 (SD=1.25). Table 9 provides descriptive statistics for each dependent measure.

Intervention

The New Forest Parent Training Programme Self-Help (NFPP-SH; Laver-Bradbury, Thompson, Weeks, Daley, & Sonuga-Barke, 2010)

The New Forest Parent Training programme (NFPP-SH) is a specialized parenting intervention specifically designed to address the core symptoms of child ADHD. As well as using standard behaviour management techniques to manage child problem behaviour, the NFPP-SH is based upon key aetiological theories thought to underlie the disorder, namely deficits in attentional and self-regulation skills. The intervention also focuses on the need to develop constructive and reciprocal interaction between parent and child through which the child's self-regulatory skills are developed. Constructive parenting is defined as the parent's ability to set the child challenging goals that are within the child's current level of competence, and provide support and developmental scaffolding to allow the child to reach these goals.

Table 9. *Means and SDs for each dependent measure*

Measure	Mean	*SD*
Child ADHD (PACS)	20.54	5.60
Parent depression (GHQ)	4.55	4.03
Parenting Efficacy (PSOC)	20.79	3.17
Parenting Satisfaction (PSOC)	22.37	5.37
Adult ADHD (AARS)	7.75	6.30
Number of Children in Family	2.42	1.25

Note. ADHD = attention deficit-hyperactivity disorder; *PACS* = Parental Account of Childhood Symptoms; *GHQ* = General health Questionnaire; *PSOC* = Parental Sense of Competence; *AARS* = Adult ADHD Rating Scale.

Specific components of the intervention include i) psycho-education about ADHD; ii) improving the quality of parent-child relationship to increase positive parenting, the extension of language in order to improve self-regulation skills in the child, and play; iii) appropriate and consistent limit setting; and iv) attention training to help parents develop the child's regulatory skills and enhance attentional capacity. Implementation of intervention components relies on the parent, through the use of exercises intended to enhance child regulatory skills.

For example, the parent engages in games with the child to help him/her attend, concentrate, and take turns. Parents are also encouraged to work on their own communication skills by using short commands and eye contact to get the child's attention, keeping calm, and praising their child. In the NFPT-SH, parents are presented with parenting information in a written manual. Information is presented in six steps, which correspond with the six-week duration of the programme.

Prior to beginning the self-help programme, parents attended small group inductions to the self-help material. All inductions were conducted by a trained therapist and followed the same structured format: i) Psycho-education about ADHD to help the parent understand why their child behaved in certain ways, ii) research evidence from previous therapist led trials of the New Forest Parent Training Programme to help parents to see that it was possible to change their child's behaviour, iii) an explanation of the key strategies introduced in the self-help manual, and iv) discussion of potential barriers to implementing strategies in the home, including how to involve siblings, and motivate partners and other adults involved in the care of the child with ADHD. At the end of the induction, each parent was provided with as many copies of the self-help manual as they wished. Parents often sought at least three copies of the self-help material, one for themselves, one for their partner and one for their child minder or the child's teacher. Parents received a weekly reminder telephone call during the six weeks that they were following the self-help programme. This telephone call served two purposes: i) to remind the parent to progress to the next week of the programme

and ii) as a safety monitoring call to ensure that participation in the self-help programme was not associated with unanticipated side effects.

Measures

Child Behaviour

Parental Account of Childhood Symptoms

The PACS (Taylor et al, 1991) is a structured clinical interview administered to the parent, and is used to assess the core symptoms of ADHD. Parents describe the frequency and severity of ADHD symptoms over the previous six months across a range of situations (e.g. in the home, with friends, in public). These descriptions are then rated by a trained interviewer using criteria validated according to clinical practice (Sonuga-Barke et al., 2001). This instrument was used as the outcome measure in the present study.

Parent Characteristics

General Health Questionnaire

The GHQ (GHQ12, Goldberg, 1982) is a widely used, reliable and well-validated self-report questionnaire, and was used to assess parental depressed mood. The scores from the 12 items are combined to produce an overall rating. Responses are made on a 4-point anchored scale, scored 0 (better than usual); 0 (the same as usual); 1 (less than usual); and 1 (much less than usual). The presence of three symptoms indicates elevated levels of low mood (Goldberg, 1982). In the current study, Cronbach's alpha was 0.92.

Parental Sense of Competence

The Parental Sense of Competence Scale (Johnston & Mash, 1989) is a 17-item self-report scale, measuring parent satisfaction and efficacy on two subscales: a) satisfaction with their parenting role (reflecting the extent of parental frustration, anxiety, and motivation); and b) feelings of efficacy as a parent (reflecting competence, problem-solving ability, and capability in the parenting role). The Total score (16 items), Satisfaction factor (9 items), and the Efficacy factor (7 items) show a satisfactory level of internal consistency (α = 0.79, 0.75, and 0.76 respectively; Johnston & Mash, 1989).

Adult ADHD Rating Scale

The Adult ADHD Rating Scale (Barkley & Murphy, 1998) is a self-report scale with 18 items based on the *DSM-IV* symptom list. It includes nine items pertaining to inattentiveness, three items relating to impulsiveness, and six items associated with hyperactivity. Adults rate their own behaviour over the past six months on a 4-point scale (0 = rarely, 1 = sometimes, 2 = often, and 3 = very often). The scale as a whole and the inattention and impulsive/overactive subscales within it have good internal consistency, and also predict concurrent ratings provided by the respondents significant others (Murphy & Schachar, 2000).

Procedure

Parents were visited at their home on two occasions by a researcher (T_1, before the start of the programme, and T_2, after completion of the programme). All

measures were taken at each time point (see *Chapter 3* for further details regarding the procedure).

Results

Predictors of Intervention Outcome

First, predictor variables were entered into a Spearman's correlation in order to ascertain the relationship between those variables (see Table 10). Positive, statistically significant relationships existed between child ADHD symptoms at T_1 and ADHD symptoms at T_2. Additionally, parenting satisfaction was positively and significantly correlated with child ADHD symptoms at T_2, whilst parenting efficacy was significantly and positively correlated with the number of children in the family. No other significant correlations between the predictor variables emerged.

Child ADHD symptoms at T_1, adult ADHD symptoms, parental depression, parenting efficacy and satisfaction, and number of children in the family were entered as predictor variables. Child ADHD symptoms as measured by the PACS at T_2 was the outcome variable. All predictors were entered into a linear regression (Enter method).

Of the six variables examined as predictors of outcome, two emerged as significant predictors. As Table 11 shows, the severity of child ADHD symptoms at T_1, as measured by the PACS predicted treatment response at T_2. The higher the PACS at T_1, the higher the PACS at T_2, suggesting that children with more severe pre-treatment ADHD symptoms make less treatment-related gains in

ADHD symptoms after intervention. Parental depression significantly predicted outcome, such that parents with higher levels of depression at T_1 had children with more severe ADHD symptoms at T_2. Parent characteristics, including parental ADHD symptoms, parental efficacy and satisfaction, and number of children in the family did not significantly predict outcome.

Table 10. *Correlation table demonstrating the relationship between dependent variables*

Measure	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
PACS T_1 (1)	—										
PACS T_2 (2)	.71**	—									
PSOC Efficacy T_1 (3)	.08	.10	—								
PSOC Efficacy T_2 (4)	.44*	.46*	.10	—							
PSOC Satisfaction T_1 (5)	.23	.40*	-.33	-.06	—						
PSOC Satisfaction T_2 (6)	.22	.11	-.50*	.16	.55**	—					
AARS T_1 (7)	-.22	.05	-.20	-.10	-.03	.02	—				
AARS T_2 (8)	-.09	.14	-.14	-.11	-.01	-.19	.85**	—			
GHQ T_1 (9)	.05	.34	.19	.27	.07	-.01	.23	-.08	—		
GHQ T_2 (10)	-.06	.20	.22	.23	.05	.08	-.07	-.29	.87**	—	
No. children in family (11)	-.23	-.24	.37*	.34	-.22	-.00	-.20	..33	.24	.32	—

Note. PACS = Parental Account of Childhood Symptoms; PSOC = Parental Sense of Competence; AARS = Adult ADHD Rating Scale; GHQ = General Health Questionnaire * = $p<.05$; **= $p<.001$ (both one-tailed).

The data for child ADHD scores at T_1 and T_2, for each of the three maternal ADHD groups are show in Figure 3. It is interesting to note that parents with lower levels of depression had children with lower ADHD scores. Also, children in the low and mid parental depression groups displayed a reduction in ADHD symptoms following self-help PT intervention, those in the high group showed less change.

Table 11. b values and *t* Statistics for Predictors of Child ADHD at T_2

Predictors	Measure	*B*	*SE B*	*Aβ*	*t*
Severity of child ADHD symptoms	PACS	0.67	0.11	.72	6.03**
Parental ADHD	AARS	0.06	0.06	.11	1.10
Parental Depression	GHQ	0.38	0.17	.26	2.21*
Parental Satisfaction	PSOC	0.17	0.12	.17	1.34
Parental Efficacy	PSOC	0.09	0.22	.05	.40
Number of Children in the Family	-	-0.30	0.54	-.06	-.55

Note. ADHD = Attention Deficit Hyperactivity Disorder; PACS = Parental Account of Childhood Symptoms; AARS = Adult ADHD Rating Scale; GHQ = General Health Questionnaire; PSOC = Parental Sense of Competence.

* $p < .01$; $p < .001$

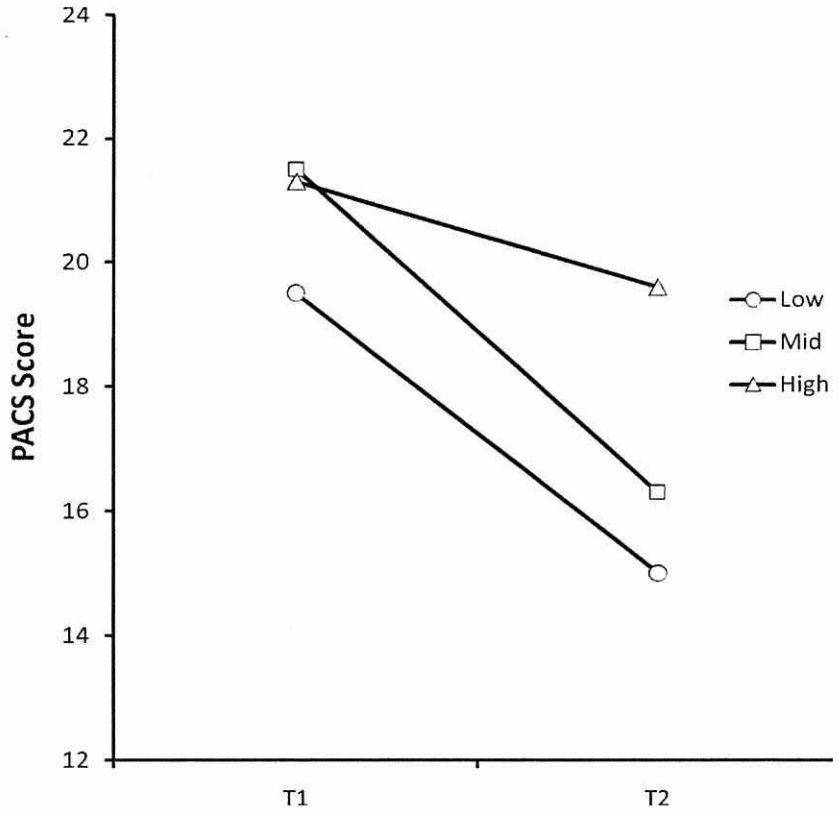

Figure 3. Patterns of change in child attention deficit hyperactivity disorder (ADHD) symptoms after self-help PT for children of parents with high (7>), medium (4-6), or low (0-3) levels of depression as measure by the GHQ.

The significance of this pattern of results was tested by a mixed-ANOVA, with group (low versus medium versus high parental depression) as the between-subject independent variable, and time (scores at T_1 and T_2) as the within-subject variable. Child ADHD score on the PACS was the dependent variable. There was a main effect of Time, with higher child ADHD scores at T_1 (20.78) compared to T_2 (17.0), $F(1,21) = 18.98$, $p<.001$. There was no main effect of Group, showing no significant difference in scores between depression groups (17.32, 18.92, and 20.43 for low, medium, and high groups, respectively), $F(2,21) = 0.81$, $p=.46$.

The interaction between Time and Group also did not reach significance, $F(2,21) = 1.37$, $p=.28$.

Discussion

In the present study we explored the predictive influence of a number of child and parent variables on response to self-help PT intervention targeting child ADHD symptoms. Predictor analyses suggest that children with more severe pre-treatment levels of ADHD symptoms respond less favourably to self-help intervention. This finding is consistent with previous research for therapist-led PT (Owens et al, 2003; Reyno & McGrath, 2006). Furthermore, high levels of parental depression (a score of 7> on the GHQ) limited the improvement shown by children after self-help PT, consistent with previous studies (MTA Co-operative Group, 1999; Reyno & McGrath, 2006). This study extends previous research by providing evidence for the role played by parental depression in determining the degree of improvement associated with *self-help* parent therapies for children with ADHD symptoms. Interestingly, an alternative PT programme—the Incredible Years (IY; Webster-Stratton, 1998)—has consistently shown that children of depressed parents show more treatment related gains compared with children of non-depressed parents. However, greater improvements in treatment outcome following IY intervention may arise due to specific features of intervention. For example, goal-setting and problem-solving skills are all know to be deficient among people with depression (Hutchings, Lane, & Kelly, 2004) and the IY intervention emphasises developing these skills in the parent. It should also be mentioned that IY is targeted at children with conduct problems (although it

has recently demonstrated efficacy for children with co-morbid conduct problems and ADHD symptoms; Jones et al, 2007; 2008), whereas the NFPP-SH is focused upon improving child ADHD symptoms.

It is noteworthy that the study failed to replicate the previously reported finding that maternal ADHD moderated the success of therapist-led PT (Sounga-Barke et al, 2002). This inconsistency could be due to differing sample characteristics as Sonuga-Barke and colleagues recruited preschoolers, whereas our sample concerned older children. A comparison of mean parent ADHD scores on the AARS suggest that our sample also showed higher levels of ADHD symptomatology compared with the Sounga-Barke sample (15 compared with 13.3 respectively), ruling out the possibility that mothers in the Sonuga-Barke sample had higher levels of ADHD. Previous research has suggested that high levels of parental ADHD may represent a significant barrier to effective PT due to cognitive impairment (e.g. difficulty in both following through on instructions), disorganisation on the part of the parent, and lower levels of adherence to treatment regimens. In the current study, parents were required to implement self-help intervention without structured therapist input, and as such there was a greater reliance on the parents to engage with and implement the intervention. Whilst purely speculative, this may have increased parents' motivation and organisational capabilities with regards to implementing self-help PT without therapist input, thus minimising the potential role of ADHD symptoms in impacting on treatment outcome. Even though we did not directly assess parental levels of motivation, it may be that parents in the current study were relatively

motivated prior to intervention. In fact, parenting satisfaction and efficacy in the current study were positively correlated with variables (severity of child ADHD symptoms, and number of children in the family), which are typically considered to affect parenting self-efficacy negatively (van den Hoofdakker, 2010), suggesting that parents in the current study perceived themselves to be relatively satisfied and competent in the parenting role irrespective of high levels of child ADHD and number of children in the family. In future studies, it will be important to explore whether variables such as parental self-efficacy play mediating roles in treatment outcome. The current study focused only on predicting outcome and thus did not include mediator analysis. However, our results are consistent with those recently reported by van den Hoofdaaker and colleagues (2010) who reported no significant moderator effects of maternal ADHD symptoms on treatment outcome.

The current study also showed that pre-intervention levels of parental satisfaction and efficacy did not affect treatment outcome. This result is consistent with those reported by McTaggart and Sanders (2007) following group Triple-P PT. Interestingly, McTaggart and Sanders showed that changes in parenting style occurred because of a change in parental self-efficacy. Although we did not undertake mediator analysis in the current study, future research examining self-help PT may want to examine parental competence as a potential mediator of outcome. These results indicate that PT interventions that target improving parents' sense of self-efficacy and satisfaction rather than providing behavioural management strategies only, will be more successful.

Limitations

First, the current study defined parental depression on the basis of scores on one self-report scale. Whilst this measure has been shown to be reliable in previous studies and was of predictive value in the current study, supplementing this measure with either reports of symptoms from significant others or clinical judgement would have strengthened the findings. Second, the study relied on the parents for information regarding child ADHD symptoms. The measure used in the current study has been shown to be related to direct observations of ADHD behaviours (Sonuga-Barke et al, 2001), and is also based on judgements made by a trained interviewer. Nevertheless, an independent source would have provided valuable additional information and helped to confirm the pervasiveness of child ADHD symptoms as reported by the parent. One related issue concerns the possibility that association between high levels of parental depression and poorer treatment outcome is a measurement artifact rather than a real effect. For example, parents with depression may be less sensitive to changes in their children's behaviour than other parents. Indeed, Webster-Stratton and Hammond (1988) found that depressed mothers perceived their child as significantly more disturbed than did non-depressed mothers. Additionally, Griest and colleagues (Griest, Wells, & Forehand, 1979) found maternal ratings of child problem behaviour correlated more highly with maternal self-reports of depression than with observations of child problem behaviour. The results must therefore be interpreted with caution.

Third, our small sample size limited the statistical power. Some of the negative findings, that is, the absence of a predictive effect of parental ADHD should be viewed from this perspective. In light of the small sample size, the analyses presented here should be viewed as exploratory, and interpreted with caution. On the other hand, in a field where there have been no studies examining predictors of self-help PT intervention to our knowledge, exploratory studies are worthwhile. Fourth, we also did not investigate the possible role of several variables, such as child gender, family socio-economic status, and ethnicity. In other studies, these factors have been identified as predictors and moderators of treatment response (Gardner et al, 2010; Owens et al, 2003; Rieppi et al. 2002). Sample size and characteristics (e.g. the large proportion of Caucasian participants) limited the number and type of variables that could be selected for the current study.

Additionally, we did not include moderator and mediator analyses in the current study. Exploration of such variables will need to become high priority for self-help PT in order to a) examine the types of families for whom self-help intervention may be particularly suitable, or conversely, subgroups for whom extra therapeutic support may be needed, and b) to understand which 'ingredients' (e.g. positive parenting, or parental self-efficacy) of self-help intervention predict outcome, in order to ensure that these elements are emphasised in training and implementation.

Clinical implications

Previous research has shown that therapist-led NFPP is an effective treatment for children with ADHD (Sonuga-Barke et al, 2001; Thompson et al, 2009). However, there are significant numbers of children who do not evidence benefits after PT (Webster-Stratton & Hammond, 1997). This study identified high levels of parental depression and child ADHD symptoms as key predictors of treatment outcome for this particular self-help intervention. In cases where high levels of parental depression are apparent, it may be necessary to include adjunctive components of intervention, which include therapist support in an effort to enhance the outcomes of self-help PT in the presence of parental depressive symptomatology. Including therapist support may enhance parents' motivation to adhere to the treatment protocol, thus increasing the likelihood that positive gains will be made. One promising example of such an approach is Dishion's Family Check-Up model (Dishion et al. 2008), which employs techniques based on motivational interviewing to enhance engagement. Clinicians may also want to consider first targeting high levels of parental depression before commencing a self-help PT intervention.

Our study also suggests that families of children with more severe ADHD symptoms may benefit less from self-help PT. These results are consistent with previous research. For example, in the largest treatment study of ADHD to date, the Multimodal ADHD Treatment Study (MTA Co-operative Group, 1999), Owens and colleagues (2003) reported that children with high levels of baseline ADHD symptoms showed poorer response to both behavioural intervention and

medication management. This is significant because it means that self-help PT failed to improve outcomes for those children in the study who were potentially most in need of intervention. This raises pragmatic questions in relation to the use of self-help PT as a treatment option for children with high levels of symptomatology. However, the current findings need to be interpreted with caution due to the small sample size. Further investigation of severity of child ADHD symptoms as a predictor of treatment response will need to be conducted using larger samples.

Before moving on to the General Discussion (*chapter 6*), it should be noted that a third empirical study was planned as part of the PhD study, but due to difficulties with recruitment and a number of other factors, this study could not be implemented. A brief discussion of the study is outlined below.

Multi-modal intervention for ADHD has been evaluated in the largest treatment study of ADHD to date—the Multimodal Treatment Study of ADHD (MTA, Co-operative Group, 1999). Overall results supported the use of combination psychosocial and medication management intervention, and medication management alone for children with combined ADHD. Recent clinical guidance from the National Institute for Health and Clinical Excellence (NICE, 2008) on the treatment of childhood ADHD recommends that drug treatment should form part of a comprehensive treatment plan that includes psychological, and behavioural interventions.

Based on this, a third empirical study had received ethical approval to evaluate the efficacy of NFPP-SH delivered in combination with medication versus NFPP-SH alone. The aim of the study was to evaluate the relative efficacy of combined psychosocial self-help and medication management versus psychosocial self-help alone in the treatment of clinically referred children with ADHD. The study adopted a randomised controlled trial design and received ethical approval to recruit school-age children with DSM-IV diagnosis of ADHD from two local child and adolescent mental health services. The assessment

battery for this study included clinical interview with the parent (PACS, Taylor et al, 1991), a series of questionnaire measures designed to assess child and parent functioning (i.e. child ADHD symptoms, child behavioural and emotional difficulties, parental mental health, parental ADHD symptoms, and parenting competence), parent-child interaction (GIPCI, Brotman et al, 2003), and an additional measure to assess parental expressed emotion (i.e. a parent-report measure assessing parental levels of positive and negative emotion towards the child)—the Preschool Five Minute Speech Sample (PFMSS; Daley et al, 2003). Additionally, this study included two follow-up points, as opposed to the one follow-up conducted for study 1 (see *chapter 3*). Measures were due to be taken at baseline, post-intervention (follow-up 1), and 15 weeks post-intervention (follow-up 2). The evaluation did commence with recruitment. However, over a 12-month period, only 13 eligible participants were recruited and agreed to take part. Unfortunately, follow-up 1 data are only available for six of those participants. There are a number of reasons why this study did not come to fruition, and they are elaborated upon below.

The majority of referrals received from both child and adolescent mental health services were for adolescents (13 years>) with ADHD. Although the remit and age limits for recruitment had been explained before recruitment commenced, unfortunately, this was not adhered to. In an attempt to increase the number of appropriate referrals my supervisor Dave Daley, and myself made a number of visits to the clinics partaking in the evaluation. However, we continued to

experience recruitment difficulties, despite regular telephone contact with members of the staff.

Both sites across which we recruited were experiencing prolonged periods of absence and sickness for medical staff, which meant that both sites had long periods when they were not able to allow children to start medication. Consequently, by the time baseline assessments had been conducted and parents were ready to begin self-help intervention, this was out of sync with the start of medication, on occasion by a couple of months. Clearly, this made it difficult for us to evaluate the efficacy of self-help when delivered in combination with medication.

The difficulties experienced in trying to get this third study off the ground served to highlight the difficulties of conducting clinical research in service settings, as opposed to highly controlled 'lab' settings, with many of the 'everyday' factors (e.g. staff sickness) being out of our control. The addition of this study would have contributed significantly to the current literature, as only one study to our knowledge has evaluated the efficacy of self-help as an adjunct to medication in the treatment of children with ADHD, reporting positive results (Long et al, 1993).

CHAPTER 6

General Discussion

Across two experimental chapters, the short-term efficacy of a self-help parent-training programme—the New Forest Parent Training Programme Self-help (NFPP-SH)—was investigated. A third qualitative chapter investigated parents' perceptions of the acceptability of self-help PT. This discussion chapter begins by giving an overview of the main objectives and results reported in this thesis, before moving on to a discussion of the limitations and methodological considerations of the research. Finally, future directions for the research are presented. The clinical implications of the findings presented herein are also discussed.

Overview

This thesis examined the efficacy of NFPP-SH (Laver-Bradbury et al, 2010) with families of clinically referred children displaying ADHD symptoms. As reviewed in *chapter 2*, there is convincing evidence to support the efficacy of self-help PT for childhood behaviour problems, and the chapter concluded that self-help interventions may be potentially useful clinically. Therefore, the first objective of the thesis was to evaluate the short-term efficacy of a self-help parent training (PT) intervention—the NFPP-SH—in leading to reductions in child ADHD symptoms (*chapter 3*). Second, parents' views on the acceptability of parent training for child ADHD when delivered via written self-help were investigated using qualitative methodology (*chapter 4*). Finally, potential predictors of intervention outcome were examined within the sample in order to address questions relating to the efficacy of NFPP-SH for certain sub-groups of

families (e.g. parents with depression; *chapter 5*). Below, I discuss each of the main research findings and how they integrate to address the efficacy of self-help intervention for children with ADHD symptoms.

Summary of findings

Chapter 2 reported on the current state of the evidence-base for the efficacy of self-help PT interventions for childhood behaviour problems[2]. Two main modes of delivery were reviewed, namely bibliotherapy and multimedia self-help. Overall, the evidence pointed to the finding that self-help PT was beneficial for children with behavioural problems. However, the addition of brief therapist assistance—typically in the form of telephone contact (20 minutes or < per week)—enhanced outcomes for child and parent, when compared with self-help alone. Additionally, evaluations that included longer-term follow-ups (i.e. 6 months >) showed that self-help intervention led to changes similar to those achieved with more intensive therapist input, suggesting that changes in child and parent behaviour occurred more gradually following self-help intervention, possibly due to the absence of therapist motivation and support. Finally, it was pointed out that the majority of trials evaluating self-help PT utilized non-clinical community samples where children—although typically scoring above clinical cut-off criteria on parent-reported measures—did not have independent clinical

[2] Given the highly co-morbid nature of ADHD with conduct problems (Biederman, Newcorn, & Sprich, 1991), and the finding that some psycho-social PT programmes targeted at conduct problem children work equally for children with co-morbid ADHD (Pelham et al, 1998), as well as the paucity of research examining self-help PT in ADHD populations, it was decided to undertake a review focusing on childhood behaviour problems in general.

diagnoses, making it difficult to ascertain whether self-help PT would be equally efficacious for clinically referred children, who are likely to display more symptom severity, co-morbidity, and adversity than community samples. The chapter concluded that self-help PT is an effective form of treatment for children with behaviour problems, but further research is needed to determine the efficacy of such programmes within clinical samples.

Chapter 3 reported on the results of a randomised controlled trial evaluating the short-term efficacy of a self-help PT programme for clinically referred children with ADHD symptoms. The NFPP-SH was selected as the intervention programme for this study because of the impressive evaluation data on the programme (see Sonuga-Barke et al, 2001; and Thomspon et al, 2009). Additionally, the self-help version of the programme had not been formally evaluated. Specifically, the aims of the study were to evaluate the efficacy of the NFPP-SH in reducing children's ADHD symptoms. Post-intervention improvements in parent-child interaction, parental competence, and parental mental health were also examined.

Results demonstrated that NFPP-SH was associated with more positive outcomes for children: effects of self-help intervention on ADHD symptoms were significant with intervention children showing reductions in the core symptoms of the disorder on parent clinical interview. Effects of NFPP-SH on parent-reported questionnaire of child ADHD were large ($d > 1$) and significant. Improvements in parent-reported child ADHD were not corroborated by independent behavioural observation of child symptoms. The investigation of clinical significance

produced mixed findings. Using the clinical cut-off criteria (17 < Taylor et al, 1991) for the Parental Account of Childhood Symptoms (PACS) semi-structured clinical interview, forty-five percent of intervention children showed clinically significant reductions on this measure. However, when the Reliable Change Index (RCI; Jacobson & Truax, 1991) criteria were adopted to assess clinical significant change, 0% of intervention children (and 0% of control children) met criteria for recovery by the end of the trial.

Self-help intervention produced effects beyond child ADHD symptoms. Parents who received the intervention showed large ($d > 1$) and significant improvements in self-reported parenting self-esteem, suggesting that parents emerged from the intervention with a greater sense of competence and satisfaction in their parenting skills. There were no improvements in parental self-reported mental health or independently observed parent-child interaction following intervention. Overall, the results supported the efficacy of self-help in reducing child ADHD symptoms, and parenting self-esteem. The ability of self-help to lead to significant improvements in other domains of parental functioning, such as parental mental health, and the quality of parent-child interaction was less positive. Whilst the results are consistent with previous research supporting the finding that self-help PT is a valuable treatment option for children with behavioural difficulties (Connell et al, 1997; Lavigne et al, 2008; Markie-Dadds & Sanders 2006a, b; Sanders et al, 2000; Sanders et al, 2008) the results outlined in Chapter 3 extend these findings to a clinical population, and as such, can be considered a significant contribution to the literature.

Chapter 4 reported the results of a qualitative study investigating parents' perceptions of the acceptability of the NFPP-SH, and perceived barriers to implementing the intervention. Previous evaluations of self-help PT for childhood behaviour problems have consistently shown significantly higher dropout rates in self-help alone treatment conditions (Nicholson & Sanders, 1999; Morawska & Sanders, 2006; Sanders et al, 2000; Webster-Stratton et al, 1988). Moreover, parent satisfaction ratings of self-help are less favourable compared with those reported for therapist-led intervention. Broader assessment of how treatment is viewed by parents, including the acceptability of an intervention, has important implications for treatment engagement and adherence. Previous research has shown that when treatment is viewed as too demanding or irrelevant to the child's difficulties, this directly contributes to premature dropout of treatment (Kazdin, Holland, & Crowley, 1997). Furthermore, perceived barriers to accessing/attending treatment have also been implicated in parents' views of the acceptability of treatment. For example, potential barriers including arranging childcare, travelling to and from clinics, and time constraints were all negatively related to inclination to enroll in a group PT programme (Spoth & Redmond, 1995). Whilst self-help intervention clearly circumvents many of the logistical barriers to attending treatment (such as travel and childcare), it remained unclear if parents' viewed self-help as an acceptable form of treatment.

In order to address this, in-depth interviews were conducted with five mothers that had previously completed the six-week self-help NFPP-SH intervention. Questions were open-ended and focused on the potential advantages

and disadvantages mothers felt were associated with receiving self-help intervention, as well as challenges and barriers to implementation. Interview data were analysed using a grounded theory approach (Strauss & Corbin, 1998).

For the mothers in this study, the convenience and accessibility of self-help was seen as advantageous. Following self-help intervention, mothers reported an increased understanding of the disorder, which led to a change in perspective about ADHD, and helped them to normalize their child's behaviour as well as providing them with a framework to tackle child problem behaviour. One aspect of the self-help programme mothers found challenging was the lack of therapist support, and many reported feelings of isolation due to this lack of contact with a therapist. Similarly, mothers reported feeling isolated without the support of a group and believed this was the "only thing missing" from the self-help programme. Significant challenges for mothers included persevering with the intervention strategies, in part due to the ease of continuing to use ineffective parenting strategies, but also due to high expectations of treatment, and the reality of having to persist with the intervention over the longer-term in order to achieve change. Factors interfering with mothers' efforts to implement self-help included relapses in child behaviour, and disagreement and conflict with friends and family members over the need for and value of treatment. Barriers to implementing self-help intervention included lack of mothers' support systems, competing needs of other siblings, and time constraints. Despite a number of significant challenges and barriers to implementing self-help, mothers reported benefits of the

programme on child behaviour and improvements in parenting confidence and stress.

Chapter 4 extends the findings from previous research on parental satisfaction with self-help, as it includes in-depth analysis of parents' perceptions of the acceptability of this form of intervention, as well as challenges and barriers parents' experienced when implementing self-help intervention.

PT programmes are not universally effective for all families (Webster-Stratton & Hammond, 1997). Factors known to impact upon the effectiveness of PT include child (e.g. age, symptom severity), parent (psychopathology, stress), and family (e.g. socio-economic status, single parenthood) specific variables. From a clinical perspective, an understanding of patient characteristics that predict intervention outcome could help direct limited resources to those most likely to benefit from a certain form of PT intervention (Hinshaw, 2007).

Chapter 5 therefore sought to explore potential predictors of self-help intervention outcome. Only intervention group families were included in this analysis in order to examine intervention-related change. Candidate predictors of outcome were examined using a multiple linear regression with child ADHD symptoms, as measured by the PACS, as the dependent variable, and baseline scores for each predictor variable as the independent variables. Candidate predictor variables for this study were chosen on the basis of previous literature examining predictors of outcome for children with conduct problems, due to the high co-morbidity of this disorder with ADHD (Biederman et al, 1991), and from

the limited ADHD literature (Sonuga-Barke et al, 2002). Predictor variables examined in the current study were severity of child ADHD symptoms, parental ADHD, depression, parenting satisfaction and efficacy, and number of children in the family.

Results revealed two significant predictors of intervention outcome. First, the severity of child pre-treatment ADHD symptoms—measured by PACS—was associated with a less favourable response to treatment. This finding is inconsistent with other previous studies. For example, trials that have examined predictors of outcome in relation to Incredible Years intervention for children with conduct problems report better outcomes for children with increased symptom severity (August, Realmuto, Hektner, & Bloomquist, 2001). Conversely, and commensurate with our findings, results from the MTA study (MTA Cooperative Group, 1999) revealed that children with greater severity of ADHD symptoms demonstrated poorer outcomes at follow-up, compared with children with lower severity of symptoms. The second significant predictor of intervention outcome was parental depression. Our results concur with those reported in the MTA study (Owens et al, 2003), which showed that high levels of maternal depression was associated with a less favourable response across treatment modalities, and in a recent meta-analytic review, Reyno and McGrath (2006) reported that maternal depression was a salient factor in lowering the efficacy of PT outcome. Contrary to these findings are those reported by van den Hoofdakker and colleagues (2010) who revealed that maternal depression showed no predictive effects following a 12-week behavioural PT for children with

clinically diagnosed ADHD. All other candidate predictors examined did not significantly predict outcome, suggesting that NFPP-SH is an effective intervention irrespective of parent ADHD symptoms, perceived parenting competence, and number of children in then family.

Collectively, these studies have provided evidence for the short-term efficacy of NFPP-SH for reducing ADHD symptoms in a clinical sample of children, with few predictors of intervention outcome. Additionally, a qualitative study exploring parents' acceptability of self-help intervention revealed that when self-help includes components of psycho-education, and a structured framework to tackle child problem behaviour, parents' view self-help as an acceptable and relevant form of treatment, as well as convenient and highly accessible. Our results suggest there may be merit in addressing parents' pre-treatment expectancies, competing needs of siblings, time demands, and lack of social support in order to increase the acceptability of self-help intervention. The addition of minimal levels of therapist support may also contribute positively to parents' perceptions of the acceptability of self-help as a mode of treatment delivery. The NFPP-SH may provide a promising alternative to more traditional therapist-led group PT programmes, lending itself as a valuable first-line intervention for children with clinical levels of ADHD symptoms. The discussion now turns to a consideration of the methodological limitations of the current studies.

Methodological considerations

There are a number of methodological limitations of this thesis that warrant further discussion. First, the randomised trial evaluating the efficacy of NFPP-SH (*chapter 3*) showed that treatment related gains in child ADHD symptoms were limited to parent-report measures (i.e. clinical interview, and questionnaire measures), and improvements in symptoms were not corroborated by independent observation of the child. The lack of congruence between different measures of child ADHD immediately following intervention weakens the conclusion that NFPP-SH was an effective treatment. Possible explanations put forth to account for the failure to find effects on observed ADHD symptoms included the low base rates of inattentive and overactive behaviour observed in the current sample compared with previous samples (e.g. Sonuga-Barke et al, 2001), as well as the possibility that improvements in child ADHD may be limited to subjective elements of assessment tied to parental perceptions of child behaviour.

Whilst both explanations may plausibly account for the lack of significant effects on observed symptoms, the inconsistent findings attesting to the validity and reliability of the measure may also potentially have impacted on its ability to detect treatment-related change. Across the only two previous studies (to our knowledge) to utilize the observation measure, reliability estimates (inter-rater and test-retest) have been inconsistent. For example, the first trial to utilize the measure reported good inter-rater ($r = 0.76$) and test-retest ($r = 0.81$) reliability, whereas a more recent trial evaluating therapist-led NFPP (Thompson et al, 2009) reported good inter-rater reliability ($r = 0.91$) but only adequate test-retest

reliability ($r = 0.48$). Commensurate with our findings, Thompson and colleagues (2009) reported no significant improvements on the observational measure despite large and significant effects of intervention on parent-reported child ADHD. The high inter-rater reliability of the measure suggests high levels of agreement between raters of the frequency of observed ADHD symptoms. However, the acceptable test-retest reliability in the current study and Thompson and colleagues' study (2009) suggests that it may not be a consistent measure of child ADHD symptoms. This may be due to the poor construct validity of the measure itself and the fact that patterns of switching between items and time on-task (i.e. child playing with the items) was considered a proxy measure of inattention and over-activity. A variation of the observation measure may be more appropriate for future research, although as is typical in observational research where behaviour is often captured via proxy measures of the target behaviour, it is unclear at the moment how the core symptoms of ADHD could be captured/observed differently. Furthermore, it is important to note that observation in the current study—as is typical in all observational studies—captured only a 'snap-shot' of the child (i.e. 10 minutes). In retrospect, observing the child in a classroom situation where task demands are higher in terms of attention may have provided a more change-sensitive index of child inattention and over-activity, as well as providing evidence of cross-situational impairment and improvement.

The second limitation relates to the finding that there were no effects of self-help intervention on independently observed parent-child interaction as measured by the GIPCI. These results are consistent with those reported in a

recent trial of therapist-led NFPP (Thompson et al, 2009), and are somewhat surprising as the NFPP targets the parent-child relationship. The failure to find treatment related effects may be due to the fact that the components of the observation measure did not capture the changes brought about in parenting following the intervention. Indeed, whilst there is evidence that parents increased in their use of specific parenting strategies outlined in the self-help intervention, it is unclear whether this increase would impact on the quality of parent-child relationship. For example, the use of parenting strategies such as eye contact, distraction, and scaffolding may have improved independently of variables associated with the quality of parent-child relationship, such as parental valence, warmth, and enjoyment. As well as targeting the quality of the parent-child relationship by including the use of praise, and play, the primary focus of the NFPP-SH is improving the core symptoms of child ADHD, and as such, it does not include many of the generic approaches used in behavioural PT programmes for children with conduct problems. In this respect, perhaps it is not surprising that improvements in parent-child relationship were not observed. Future research may consider including components of intervention directly addressing the quality of parent-child interaction, although interestingly, in ADHD samples, studies have shown that it is the presence of co-morbid child conduct problems as opposed to the core symptoms of the disorder that is more closely related to negative and harsh parenting styles (Johnston & Mash, 2001; McLoughlin & Harrison, 2006; Whalen & Henker, 1999). Including assessment of child co-morbidity may prove fruitful in terms of predicting expected improvements in the parent-child

relationship after intervention. The presence of co-morbidity was not assessed in the current study (although we did include a measure of child conduct and emotional problems [Strengths and Difficulties Questionnaire; Goodman, 1999], this was not included in the analysis), and therefore it was not possible to examine the possible differential efficacy of NFPP-SH on parent-child relationship for sub-groups of children with and without co-morbid conduct problems.

Another possibility accounting for the lack of observed improvement in parent-child relationship may be that positive changes in parent-child interaction occur over the longer term. Indeed, previous evaluations of self-help PT for conduct problem children have consistently demonstrated that positive improvements in parent and child behaviour occur more gradually following self-help, compared with immediate and rapid short-term changes observed following therapist-delivered intervention (Markie-Dadds & Sanders, 2006a; Sanders et al, 2000). The lack of long-term follow-up in the current study may not have allowed us to capture the impact of self-help PT on parent-child interactions.

Additionally, a global rating scale, such as the GIPCI may not have been sensitive enough to detect intervention related changes in parent-child relationship. Indeed, Thompson and colleagues (2009) reported poor to adequate reliability correlates (inter-rater and test-retest), whilst in our study, test-retest reliability was also adequate, attesting to the inconsistency of the measure overall. We did not include an additional measure assessing the quality of parent-child relationship, and thus were unable to correlate the GIPCI with an alternative measure assessing the same construct, which would have provided valuable

information regarding the construct validity of the measure. In retrospect, an alternative measure of the quality of parent-child relationship may have provided a more change-sensitive index of parent-child relationship. One potential measure that has shown consistently good levels of reliability and validity and is a measure of expressed emotion (EE; a measure assessing positive [e.g. warmth] and negative [e.g. criticism] emotions expressed by a parent towards their child with ADHD) within the parent-child relationship is the preschool five-minute speech sample (PFMSS; Daley, Sonuga-Barke, & Thompson, 2003). It is perhaps noteworthy that the PFMSS was included in the battery of assessment measures for the proposed evaluation of NFPP-SH plus medication vs. NFPP-SH alone, which unfortunately, was not conducted due to recruitment problems.

A final limitation with regards to the GIPCI observation measure is that observation alters behaviour, often referred to as 'reactivity' (De Amici, Kiersy, Ramajoli, Brustia, & Politi, 2000; Mangione-Smith, Elliott, McDonald, & McGlynn, 2002). For example, previous research has demonstrated that parents were more likely to play with their child, be more verbally positive and use more structure in their play when they were aware that they were being observed (Zegiob, Arnold, & Forehand, 1975). This is closely connected to social desirability and agreeableness (Graziano, & Tobin, 2002) whereby participants behave in a way they feel puts them in a positive light. Although we cannot be certain about the exact degree of social desirability and reactivity effects in our study, the nature of the observation reduced these effects in that they were conducted in the natural setting of the home, where there is less risk of observer

reactivity under these circumstances than in less natural settings with artificial tasks (Gardner, 2000).

Third, the absence of a longer-term follow-up can be considered a significant limitation of the current studies. Although the inclusion of a longer-term follow-up would have provided useful information regarding the stability of the short-term improvements reported in our clinical trial, the design of the trial precluded a longer-term follow-up as once families had completed assessment and received a formal diagnosis of ADHD, a medication treatment regime was started. Thus, it was not possible to determine the long-term efficacy of NFPP-SH in medication naïve children.

At the moment, it is not possible to attest to the efficacy of NFPP-SH in reducing ADHD symptoms over the long-term. Both previous trials evaluating therapist-led NFPP (Sonuga-Barke et al, 2001; Thompson et al, 2009) showed that treatment related improvements in child ADHD symptoms were maintained at fifteen, and nine weeks respectively. It is difficult to speculate about the long-term efficacy of NFPP-SH, however, previous research has shown that self-help interventions for children with behavioural problems can, over the longer term lead to changes similar to those achieved with therapist-led programmes (Markie-Dadds & Sanders, 2006a; Sanders et al, 2000). The long-term benefits of self-help will need to be evaluated.

Fourth, we did not assess for the presence of child co-morbidity in the current set of studies. As discussed in *chapter 1*, co-morbidity can be considered

the rule rather than the exception in ADHD samples. The presence of co-morbid anxiety, conduct, or oppositional problems has been shown to significantly affect treatment outcome both positively (Garcia et al, 2009) and negatively (Goez et al, 2007). Whilst the evidence supporting differential treatment outcome for sub-groups of ADHD children with and without co-morbidity may be inconsistent, from a clinical perspective, assessing for the presence of co-morbidity in ADHD samples may be particularly important as this may have considerable implications for treatment of children with the disorder. Furthermore, as discussed previously, the presence of co-morbid conduct problems is more closely associated with parenting style in children with ADHD as opposed to the core symptoms of the disorder. Any intervention seeking to modify the parent-child relationship may want to assess for the presence of co-morbid conduct problems as this may play a significant role in terms of treatment outcome.

Finally, the small sample size limited the ability to demonstrate statistical significance for all but the largest effect sizes in the randomized trial. Similarly, the small sample size in *chapter 5* may also have limited the statistical power to detect predictor effects. Indeed, the absence of predictor effects for some of the variables known to be risk factors for poorer treatment outcome (e.g. parental ADHD) may be due to limited statistical power. Nevertheless, the analyses should be viewed as exploratory and clearly, future studies will need to be conducted with a much larger sample size.

Clinical implications

The finding that self-help intervention leads to reductions in parent-reported child ADHD symptoms and increases in parenting competence and efficacy in a clinical sample suggests self-help may be potentially useful clinically. The findings presented in this thesis extend the evidence base for self-help PT by demonstrating efficacy within a clinical population. There are a number of clinical implications arising from this.

First, the promising outcomes reported in this thesis will be of significance for service providers seeking to improve health outcomes in families of children with ADHD and associated behavioural problems. Based upon our current findings, specialist clinical services (i.e. tiers 2 and 3) may want to consider using self-help as a preliminary intervention for families on waiting lists. One potential advantage of this approach is that parents may only then require brief assistance from a healthcare professional when an appointment slot becomes available. Under these circumstances, self-help may prevent deterioration in child behaviour as a recent Cochrane review (Montgomery et al, 2006) concluded that self-help parent therapies are more effective compared with no treatment at all. A further potential advantage of using self-help with families on the waiting list for services may be a decreased risk of dropout from the waiting list, given that parents would receive more timely assistance with their concerns (Markie-Dadds & Sanders, 2006b). Although parents view self-help PT less favourably than interventions that include some form of therapist support (Nicholson & Sanders, 1999), it is

likely that providing *some* form of intervention whilst waiting for input will be viewed as more acceptable compared with no intervention.

Whilst our findings do support the use of self-help with a clinical population, it is noteworthy that children in our sample had not received an independent DSM-IV diagnosis of ADHD at the time of inclusion into the trial, and it is possible that some children may not have received a formal diagnosis following the assessment process. Unfortunately, we did not have access to each child's medical records and therefore were unable to confirm how many children went on to receive a diagnosis, although the vast majority undergoing assessment at the clinic met our criteria for being 'high-risk'. Therefore, the efficacy of self-help for children with DSM-IV diagnosis of ADHD will need to be established before it is concluded with any certainty that self-help should be adopted routinely within clinical services. Another important point to consider relates to the presence of co-morbidity within clinical samples. We did not assess for co-morbidity in the current set of studies. However, previous research has shown that children with co-morbid conditions are considered to be particularly intractable and resistant to treatment (Jensen et al, 1997). Establishing the applicability of self-help for children with co-morbid disorders, who are likely to show greater symptom severity, will be particularly important, especially in clinical services where children typically present with both symptoms of ADHD and conduct problems (Jones et al, 2007).

Whilst our findings provide support for the efficacy of self-help PT in clinically referred children with ADHD symptoms, an examination of the current

literature supporting self-help PT has typically been evaluated with non-clinical community samples, reporting encouraging findings (see *chapter 2*). Based upon the current evidence, self-help may be best utilised within primary care settings via community nurses and health visitors. Additionally, general practitioners could 'prescribe' self-help PT to parents' as part of a stepped care approach to treatment, whereby self-help is employed as the most basic, and least intrusive level of intervention for families. Indeed, one such scheme— the Book Prescription Scheme—that promotes the use of evidence-based self-help bibliotherapy for people with mild to moderate psychological problems, including the use of self-help PT for children and families is already in existence across England and Wales. NFPP-SH could potentially form part of this approach. Furthermore, a model of treatment delivery based upon increasing access to evidence-based psychological therapies, such as the Improving Access to Psychological Therapies (IAPT) initiative in England, could be extended to families of children experiencing behavioural difficulties, where self-help PT could potentially provide a novel and cost-effective means of increasing access to PT interventions with proven efficaciousness.

A second clinical implication arising from the findings put forth in this thesis relates to the finding that parents and children can benefit from very minimal levels of intervention and therapist support. Clearly, our results question the necessity for traditional clinical face-to-face approaches in the treatment of childhood ADHD. Children's mental health services may want to consider using self-help PT as a potentially cost-effective intervention for increasing access to

evidence-based PT interventions. This may be particularly pertinent in the current political climate where healthcare professionals are required to 'do more with less', and provide cost-effective interventions for larger numbers of families. Clearly, self-help PT will need to be subject to economic evaluation. However, even if self-help PT does lead to potentially lower treatment effect sizes compared with therapist-led programmes, the fact that self-help is relatively inexpensive to deliver makes it potentially an extremely cost-effective intervention, although the evidence does suggest that self-help PT leads to similar treatment-related gains as those achieved with more intensive therapist input, especially over the longer-term (Sanders et al, 2000). We did not assess health economic data in the current thesis, although this will need to be addressed in future studies. Perhaps more importantly, our results extend the "principle of sufficiency" put forth by Morawska and Sanders (2006b, p.18) to account for the finding that minimal levels of intervention can have a significant impact on levels of child behaviour problems, by showing that self-help PT can be utilised effectively for clinical populations in the absence of any therapist input.

Third, both the findings from the clinical trial (*Chapter 3*) and predictors of intervention outcome study (*chapter 5*) show that the presence of parental depressive symptomatology reduces the efficacy of the intervention. Specifically, NFPP-SH did not lead to improvements in parental mental health, and the presence of high symptoms of parental depression (7> General Health Questionnaire, GHQ) predicted poorer treatment outcome—a finding consistent with previous research (MTA Co-operative Group, 1999; Reyno & McGrath,

2006). Collectively, these studies highlight the failure of NFPP-SH to impact upon general parental adjustment, as well as identifying high levels of parental depression as a key factor in the failure of NFPP-SH to produce significant effects on treatment-related improvement in child ADHD symptoms. In cases where high levels of parental depression is apparent, it may be necessary to augment self-help intervention with additional strategies, such as minimal levels of therapeutic input, or parental pharmacotherapy in order to maximize treatment gains.

Whilst purely speculative in nature, parents with high levels of depression may be less motivated to engage with and implement a structured self-help programme, and experience lower feelings of efficacy within the parenting role. The addition of minimal levels of therapist support via the telephone or web-based support may provide additional levels of support for parents when completing a self-help programme. However, the evidence supporting the addition of minimal therapist input on parental general adjustment is inconsistent. Two studies evaluating multi-media and written self-help respectively showed improvements in parental reports of depression (Calam et al, 2008; Connell et al, 2007), whilst other studies have found no benefit (Hahlweg et al, 2008; Markie-Dadds & Sanders, 2006a, b; Sanders et al, 2000). Further research will need to be conducted to determine the effects of parental depression on the efficacy of self-help PT over the short- and long-term. Until such research is conducted, it remains unclear whether self-help is an effective form of treatment for children of parents with high levels of parental depression. Nevertheless, in the current study

it is encouraging that NFPP-SH lead to improvements in child ADHD symptoms despite the lack of significant intervention effects on parental depression.

Finally, the results of our qualitative study (*chapter 4*) suggest that addressing parents' pre-treatment expectancies, and the presence of any potential barriers to implementing self-help, such as other siblings, and parents' social support systems may be particularly important to bolster the acceptability of self-help intervention. Moreover, mothers in this study indicated that the addition of therapist support would have been particularly valuable when completing the NFPP-SH, although the generalisability of these findings is limited.

Future directions

The findings of this thesis provide a platform on which future research can be based. First, the long-term impact of NFPP-SH needs to be evaluated. The results presented in *chapter 3* provide support for the short-term efficacy of NFPP-SH. However, conclusions could not be drawn regarding its potential efficacy over the long-term. Including long-term follow-ups (i.e. 6 to 12 months after intervention completion) may be particularly important in self-help PT, as it appears that positive changes following from self-help occur over the longer-term (Markie-Dadds & Sanders, 2006a; Sanders et al, 2000).

The small sample size in *chapter 3* provides a clear opportunity to repeat the study. There is a burgeoning literature supporting the efficacy of self-help PT for the treatment of childhood behaviour disorders and a large-scale clinical trial would further attest to the efficacy of this mode of delivery as a viable treatment

option for clinical populations. Furthermore, a head-to-head trial where varying modes of self-help delivery (e.g. bibliotherapy versus multi-media versus minimal therapist input via telephone or e-mail) are delivered separately would help to clarify the relative efficacy of each. Such a study has not been carried-out to our knowledge. If such a study were to be undertaken, a number of factors would require consideration. For example, as a relatively large sample would be required with three active intervention groups and a control group, a multi-site design would increase recruitment potential. Furthermore, in order to examine risk factors that could potentially moderate treatment outcome, it would be necessary to include assessment of the quality of parent-child interaction, measures of parental competencies and style, parenting stress, parental psychopathology (e.g. ADHD symptoms and depression). Additionally, all measures would need to be piloted and their reliability and validity established.

Second, the cost-effectiveness of self-help PT needs to be established. Conducting a health economic evaluation would provide valuable information to policy makers and practitioners on the relative cost-effectiveness of self-help PT. Taking into consideration the low costs associated with running self-help PT (i.e. no therapist time), even if self-help PT is less efficacious compared with more intensive therapist-led PT, its inexpensiveness makes it potentially cost-effective. Furthermore, costs could be examined from a multi-agency public sector perspective by including families' utilization of health, social, and special educational services, allowing an examination of whether self-help PT has potentially added economic benefits in reducing families' use of these services.

Such information could be gathered using client service receipt inventories such as the Service Utilization Questionnaire, which assess the child (and parent's) use of these services over the preceding six months. Finally, establishing the efficacy of self-help PT for children based upon initial levels of symptom severity (e.g. mild, moderate, severe) could help to establish whether the cost-effectiveness of self-help PT varied with the intensity of child symptomatology at baseline.

Third, there may be merit in examining the efficacy of a self-help intervention for children with ADHD within the classroom, delivered by teachers. Research consistently shows that children with ADHD experience educational underachievement (Loe & Feldman, 2007) and are more likely to use remedial academic services and be placed in special education classes (Biederman et al, 1996). As discussed in the introductory chapter of this thesis, children with ADHD who experience academic difficulties often go on to show clinically significant impairments in occupational functioning (Farone, 2005), making educational intervention a high priority. A recent review by Daley and Birchwood (2010) suggested that academic intervention for ADHD should focus upon improving executive functioning deficits (e.g. working memory, planning, and response inhibition) and symptoms of inattention. Indeed, as discussed previously in this thesis, working memory skills training has led to improvement in the domains of functioning noted above as well as parent-rated inattentive symptoms (Klingberg et al, 2005). The potential of NFPP-SH—a specialized intervention targeting the core deficits thought to underlie ADHD, including working memory—to be implemented within the classroom by teachers deserves further

investigation. NFPP-SH may be particularly effective within the classroom, given the time demands experienced by many teachers and the appeal of delivering an intervention, which requires less intensive training and supervision demands than traditional teacher interventions (e.g. the Incredible Years Teacher Classroom Management intervention, Webster-Stratton, Reid, & Stoolmiller, 2008). In addition, as teachers are all University educated professionals, it is likely they will experience fewer barriers (e.g. literacy) to accessing intervention delivered in self-help format.

Fourth, further research needs to be conducted with regards to parents' views of the acceptability of self-help PT. An attempt to investigate parents' perceptions of the acceptability of self-help PT was undertaken as part of this thesis (*chapter 4).* Based upon the results of this study, a number of areas are worthy of further investigation. For example, identifying parents' pre-treatment causal attributions for child ADHD behaviours may be particularly helpful in terms of predicting parents' engagement with self-help parenting material. Previous research has shown that parents' beliefs about the cause of their child's problem, perceptions about their ability to handle such problems, and expectations about the ability of PT to help them impact upon parents' engagement with parenting material (Morrissey-Kane & Prinz, 1999). For example, Reimers, Wacker, Derby, and Cooper (1995) found that parents seeking child mental health services who used child-referent dispositional explanations of their child's behavior problems (i.e. internal to child), rated the recommended behavioral intervention strategies as less acceptable. That is, if parents believe the problem is

dispositional within the child, then a treatment aimed at getting parents to modify their parenting style is incompatible with the parents' beliefs. The expectations that a parent holds regarding treatment can also play a role in a parent's willingness to participate. For example, parents who believe treatment should focus solely on the identified child may be reluctant to take part in treatment (Furey & Basili, 1988). The results of our qualitative study (*chapter 4*) suggest that participating in NFPP-SH helped to modify the casual attributions mothers offered for child ADHD behaviours by improving mothers understanding of the disorder. Furthermore, our results suggest there may be merit in targeting parents' pre-treatment expectancies regarding self-help in order to increase parental engagement with intervention. Given the importance of parental expectations and attitudes on treatment engagement, research that establishes the impact of client preparation for treatment on parental cognitions and expectancies is an important next step. Including a brief session on identifying parental causal attributions for child behaviour, and expectancies for treatment may be particularly beneficial in self-help PT, as parent may struggle without therapist support for the duration of the programme. Further research will need to be conducted in the area.

Fifth, an examination of moderators of outcome for self-help PT needs to be conducted. Clinically, identifying moderators of treatment outcome is particularly important as it allows identification of relevant sub-groups of families who show particularly good treatment response to self-help PT (Bretsan & Eyberg, 1998). In *chapter 5* we examined predictors of treatment outcome using a small sample of parents who had undergone NFPP-SH. Severity of child ADHD

symptoms and parental depression emerged as significant predictors of self-help PT outcome. However, further examination of treatment moderators of self-help PT is needed, as moderators of outcome for this mode of intervention delivery are likely to be significantly different from those discovered for therapist-led treatments, given the reliance on 'parent as therapist' in self-help PT.

Finally, there is potential for self-help PT to expand into alternative areas of intervention, which have reported promising findings in the ADHD treatment literature. For example, a recent study showed that mindfulness training enhanced ADHD children's compliance with maternal requests, and when the children themselves were in receipt of mindfulness, compliance increased even more markedly (Singh et al. 2009). Self-help could lend itself as an easily accessible and convenient mode of delivery for both parent and child to access mindfulness-based intervention. Indeed, there is a burgeoning literature supporting the use of cognitive-behavioural interventions for children diagnosed with ADHD that focus on self-management skills such as self-reinforcement, problem-solving, self-instructions, communication, cognitive restructuring, and self-redirection. A meta-analysis of these studies showed that treatment outcomes varied markedly, with effect sizes ranging from 0.08 to 2.08 on cognitive outcome measures (Toplak, Connors, Shuster, Knezevic, & Parks, 2008). The potential of self-help in such an area is enormous, although further randomized controlled trials will need to establish the efficacy of such approaches in the treatment of children with ADHD.

General conclusion

Collectively, these results show that the self-help version of the New Forest Parent Training programme is an effective intervention for clinically referred children with ADHD, with few predictors of intervention outcome. A qualitative study exploring parents' acceptability of self-help intervention revealed that when self-help includes components of psycho-education, and a structured framework to tackle child problem behaviour, parents' view self-help as an acceptable and relevant form of treatment, as well as convenient and highly accessible. Based upon our results, recommendations are made for addressing parents' pre-treatment expectancies, competing needs of siblings, time demands, and lack of social support in order to increase the acceptability of self-help intervention. The addition of minimal levels of therapist support may also contribute positively to parents' perceptions of the acceptability of self-help as a mode of treatment delivery. Areas for future research include establishing the cost-effectiveness of self-help PT, evaluating the efficacy of self-help as a teacher-classroom intervention, and a further investigation of moderators of treatment outcome. Overall, the results presented in this thesis extend the current evidence-base by demonstrating that self-help PT is an efficacious intervention for clinically referred children with ADHD. The NFPP-SH may provide a promising alternative to more traditional therapist-led group PT programmes, lending itself as a valuable first-line intervention for children with clinical levels of ADHD symptoms, as well as circumventing many of the barriers to treatment participation experienced by parents.

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List of Appendices

Appendix 1

Semi-structured interview guide

For overall satisfaction with the programme and advantages and disadvantages of receiving parenting information in self-help format:

1. What were your overall impressions of the self-help programme?
2. Were there any particular advantages you felt that were associated with receiving parenting information in self-help format?
3. Were there any disadvantages you felt that were associated with receiving parenting information in self-help format?
4. What did you think of the introduction session to the self-help manual?
5. Did the introduction session help you in any way, and if so, how? Did it create any problems for you, and if so, how?
6. Did you find the overall amount of time required by the self-help manual to be excessive or reasonable?
7. Why was that the case? What elements contribute to those feelings?
8. Did you feel that the length of the self-help programme was excessive or reasonable?
9. Why was that the case? What elements contribute to those feelings?
10. Did you use the self-help parenting manual with your other children?
11. If so, how did you find this?
12. How did you integrate the strategies outlined in the self-help manual into the way you currently parent?
13. Did you find this difficult?
14. What were your overall feelings about using the self-help manual?
15. Could the information have been presented to you in a better way?
16. If yes, how would you change the way the information is presented?
17. Did you have any pre-existing thoughts about how well this intervention might work?
18. How quickly, if at all, did your child respond to the strategies outlined in the self-help manual?
19. How did you use the information that we gave you about childhood ADHD and parenting strategies that could help you to help your child?
20. Did you change anything on the basis of this information, and if so how and why?
21. Did your child's response change the way that you used the self-help strategies? That is, did you discontinue the using some strategies because of the way your child responded to them?
22. How consistently did your child respond to the self-help strategies?
23. Did you feel confident carrying out the strategies?
24. Is there anything that would have helped to increase your confidence in the use of the self-help manual?

25. Did using the self-help manual become easier to use over time, and if yes or no, why was that the case?
26. What strategies worked, or didn't work for you and your child?
27. Why do you think that was the case?

For challenge and barriers to implementing the self-help intervention:

1. Were there any people or situations (i.e. work commitments) that interfered with your ability to carryout the self-help programme?
2. If so, how did this make you feel, and how did you respond to these difficulties?
3. What other supports did you have while you implemented the self-help intervention (e.g. family, friends)?
4. How did you manage to implement the self-help programme with, or without support?
5. (if parent confirms they had no support then…) How did this lack of support impact on the way you implemented the self-help programme?
6. How did this lack of support make you feel?
7. Did the people who also spent time with your child use the self-help strategies?
8. If not, why do you think this was?
9. If not, did this make things more difficult for you?
10. How did you find the absence of therapist support in the self-help programme?
11. How could the self-help programme be improved in your opinion?
12. How did you find the absence of group support in the self-help programme?
13. Can you think of anything that would have made it easier for you to implement the self-help programme?
14. Is there anything you would like to add?

Appendix 2a. Participant Information Sheet

PRIFYSGOL
BANGOR
UNIVERSITY

Parent Training for Children with ADHD: The efficacy of a Self-Administered Parent Training Intervention.

PARTICIPANT INFORMATION SHEET ONE

Researchers: Dr Dave Daley & Michelle O'Brien, North Wales Clinical Psychology Programme.

Invitation Paragraph

You are being invited to take part in a research study. Before you decide to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please contact me if there is anything that is not clear of if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the study?

Bangor/Conwy/Flintshire Child & Adolescent Mental Health Service (CAMHS) have recently decided to run a self-directed intervention service for parents whose children who are in contact with their ADHD team. The aim of this service would be to introduce parents of children with ADHD to a wider range of skills, which they can use to help their child. I would like to invite you to help us to evaluate whether this new service is helpful or not.

Why have I been chosen?

You have been chosen because your child is currently on the waiting list for an ADHD assessment.

Do I have to take part?

It is up to you whether or not you decide to take part. If you decide to take part you will be given this information sheet to keep and will be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time without giving a reason. A decision to withdraw at any time, or a decision not to take part will not affect the service you receive from the ADHD team.

What does it involve?

At this stage you are only being asked to consent to be contacted with further details about the study. This would involve a telephone call from Dr Daley or Michelle O'Brien who will explain the study to you and check that you understand what is involved. If you are still happy to take part we will then post you more detailed information and consent letters.

What are the possible benefits of taking part?

If you decide to take part you may be selected to receive an intervention that could reduce your child's difficult behaviours and increases your own sense of well-being. In addition, you will be helping researchers evaluate the effectiveness of a self-administered parent-training manual for children with ADHD.

Further information

If you require any further information please contact Dr Dave Daley, North Wales Clinical Psychology Programme, Bangor University, 43 College Road, Bangor, Gwynedd, LL52 2DG, telephone 01248 388067 or via e-mail d.daley@bangor.ac.uk

If you decide to take part, please keep this information sheet so that you can refer to it in the future. You also be given a signed copy of the consent form to keep for your information. If you have any complaints about the conduct of the study, these should be addressed to:

i) Hilary Pepler, Chief Executive, North East Wales NHS Trust, Maelor Hospital, Croesnewydd Road, Wrexham.
ii) Dr Oliver Turnbull, Head of the School of Psychology, Bangor University, Gwynedd, LL57 2AS

Thank you for taking to the time to read this information sheet.

Appendix 2b: Participant Consent Form

PRIFYSGOL BANGOR UNIVERSITY

CONSENT FORM ONE

Study Title: Parent Training for children with hyperactivity: Efficacy of a Self-Administered Parent Training Intervention.

Names of Researchers: Dr Dave Daley and Michelle O'Brien (PhD student), North Wales Clinical Psychology Programme.

Please tick each corresponding box

1. I confirm that I have read and understood the information sheet for the above study and have had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I can withdraw at anytime without giving a reason. ☐
3. I agree that you can contact me with further information about the study ☐

Name of person giving consent .....

Date.....

Signature.....

Contact Details:

Address.....

Post code.....

Telephone number.....

Mobile number.....

Appendix 3a: Participant Information Sheet Two

PRIFYSGOL
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Parent Training for Children with ADHD: The efficacy of a Self-Administered Parent Training Intervention.

PARTICIPANT INFORMATION SHEET TWO

Researchers: Dr Dave Daley & Michelle O'Brien, North Wales Clinical Psychology Programme.

Invitation

Thank you for agreeing to take part in this research study so far. Your help has been greatly appreciated. Now that you have spoken to Dr Daley or Michelle O'Brien over the phone, you have been invited to join the next part of the research study and it is hoped that you will wish to continue to take part. We would like to remind you about the study.

What is the purpose of the study?

The aim of the study is to evaluate the effectiveness of a parent training intervention, which you can teach yourself.

Do I have to take part?

It is up to you whether or not you decide to take part. If you decide to take part you will be given this information sheet to keep and will be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time without giving a reason. A decision to withdraw at any time, or a decision not to take part will not affect the service you receive from the ADHD team.

What does it involve?

You will be asked to complete a number of questionnaires about yourself and your child. You will then be asked to take part in a telephone interview with one of our researchers, and visited at home by researcher (Michelle), who will observe and videotape your child at play for 10 minutes, and you and your child at play for 15 minutes with toys which we will provide. The videotapes will be stored anonymously in a locked filing cabinet at the University and destroyed after five years. If you wish to continue with the study you will be allocated to one of two groups. One group will be invited to join a one-day training programme run by (*insert local CAMHS clinic*) and receive a parent training manual to follow for six weeks, which outlines strategies to help manage children with ADHD. This group will also receive a weekly telephone call lasting 3-4 minutes, which is part of the intervention. The purpose of this telephone call is to ask you some questions about your child's behaviour, your use of the manual and to remind you to move on to the next section of the manual. After six weeks, this group will be asked to repeat all the measures again. The second group will be asked to wait 6 weeks, and complete all of our measures again in week 7. If you are allocated to the group, which has to wait, don't worry, you will still receive all the same and information and training once the study has finished.

What if I am not invited to join the study?

If you are not invited to join the study, we will explain why.

What are the possible benefits of taking part?

Parent based therapies for young children with difficult behaviour have proven effectiveness. You have been selected to receive a parent training intervention that could reduce your child's difficult behaviours and increase your own sense of wellbeing. In addition, you will be helping researchers evaluate the effectiveness of a parent training intervention that you can teach yourself.

What are the possible side effects of any treatment received when taking part?

No side effects have been identified for this intervention.

What are the possible disadvantages or risks of taking part?

You will be asked to give some of your time to completing questionnaires (10-15 minutes), a telephone interview (40-50 minutes), a home-based observation of your child at play (10 minutes), and a home-based observation of you and your child at play (15 minutes).

What if something goes wrong?

The risks involved in taking part in this study are very small. However, the study does have full insurance cover in the unlikely event you think you have been harmed in some way.

Will my taking part in the study be kept confidential?

All information collected during the course of the research will be kept strictly confidential unless you tell the researcher anything, which makes them concerned that there might be serious risk to you or another person. If this were the case, the researcher would try to discuss the matter with you first. All information will be destroyed within five years of the study finishing/when the study is finished.

What will happen to the results of the study?

The results of the study will be published in a scientific journal and shared with health and care professionals who work with young children and their families. It is important to be reassured that you will not be identified in any reports or publications.

Further information

If you require any further information please contact Dr Dave Daley, North Wales Clinical Psychology Programme, Bangor University, 43 College Road, Bangor, Gwynedd, LL52 2DG, telephone 01248 388067 or via e-mail d.daley@bangor.ac.uk

If you decide to take part, please keep this information sheet so that you can refer to it in the future. You also be given a signed copy of the consent form to keep for your information. If you have any complaints about the conduct of the study, these should be addressed to:

i) Hilary Pepler, Chief Executive, North East Wales NHS Trust, Maelor Hospital, Croesnewydd Road, Wrexham.
ii) Dr Oliver Turnbull, Head of the School of Psychology, Bangor University, Gwynedd, LL57 2AS

Thank you for taking to the time to read this information sheet.

Appendix 3b: Consent Form Two

PRIFYSGOL
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CONSENT FORM TWO

Study Title: Parent Training for children with hyperactivity: Efficacy of a Self-Administered Parent Training Intervention.

Names of Researchers: Dr Dave Daley and Michelle O'Brien (PhD student), North Wales Clinical Psychology Programme.

Please tick each corresponding box

1. I confirm that I have read and understood the information sheet for the above study and have had the opportunity to ask questions. ☐

2. I understand that my participation is voluntary and that I can withdraw at anytime without giving a reason. ☐

3. If selected, I agree to complete some short questionnaires about my child's behaviour and my own wellbeing ☐

4. If selected, I agree to take part in a telephone interview about my child's behaviour ☐

5. If selected, I agree for 1o minutes of my child's play with a toy provided by the researcher to be videotaped on two occasions. ☐

6. If selected, I agree for 15 minutes of play and tidy-up between myself and my child to be videotaped on two occasions. ☐
7. If selected, I agree to receive the intervention manual and attend the one-day training programme. ☐
8. If I am selected to take part in the self-help intervention, I agree that my name can be put forward and I may be asked to take part in an interview with a researcher to talk about the helpfulness of the self-help intervention. ☐
9. If selected, I agree to take part in the above study ☐

Name of person giving consent .....

Date.....

Signature.....

Contact Details:

Address.....

Post code.....

Telephone number.....

Mobile number.....

Appendix 4a: Participant Information Sheet – Qualitative Study

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Parent Training for Children with ADHD: The efficacy of a Self-Administered Parent Training Intervention.

PARTICIPANT INFORMATION SHEET

Researchers: Dr Dave Daley & Michelle O'Brien, North Wales Clinical Psychology Programme.

Invitation Paragraph

You are being invited to take part in a study assessing parents' views on the helpfulness of a self-help parenting programme. It is an interview study, which will involve the researcher coming to visit you at your home. Before you decide to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please contact me if there is anything that is not clear of if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the study?

The purpose of this study is to find out how helpful parents find the self-help parenting programme.

Why have I been chosen?

You have been chosen because you have recently completed the six-week self-help parenting programme with your child.

Do I have to take part?

It is up to you whether or not you decide to take part. If you decide to take part you will be given this information sheet to keep and will be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time without giving a reason. A decision to withdraw at any time, or a decision not to take part will not affect the service you receive from the ADHD team.

What does it involve?

A researcher will visit you at home and ask you a number of questions about how helpful you found the self-help parenting programme. Questions will include things like your opinion on the advantages and disadvantages of receiving parenting information in self-help format. The researcher will also ask you about any benefits you perceived in terms of you and your child after the self-help programme. There will also be questions about what things you found more difficult when it came to implementing the self-help programme. There will be an opportunity for you to add anything you think we have not covered also. The researcher will ask for your consent to audiotape the interview (please see attached consent form). The interview will last approximately forty minutes.

What are the possible benefits of taking part?

If you decide to take part you will be helping researchers evaluate the effectiveness of a self-help parent-training manual for children with ADHD.

Further information

If you require any further information please contact Dr Dave Daley, North Wales Clinical Psychology Programme, Bangor University, 43 College Road, Bangor, Gwynedd, LL52 2DG, telephone 01248 388067 or via e-mail d.daley@bangor.ac.uk

If you decide to take part, please keep this information sheet so that you can refer to it in the future. You also be given a signed copy of the consent form to keep for your information. If you have any complaints about the conduct of the study, these should be addressed to:

i) Hilary Pepler, Chief Executive, North East Wales NHS Trust, Maelor Hospital, Croesnewydd Road, Wrexham.
ii) Dr Oliver Turnbull, Head of the School of Psychology, Bangor University, Gwynedd, LL57 2AS

Thank you for taking to the time to read this information sheet.

Appendix 4b: Participant Consent Form – Qualitative Study

PRIFYSGOL BANGOR UNIVERSITY

CONSENT FORM

Study Title: Parent Training for children with hyperactivity: Efficacy of a Self-Administered Parent Training Intervention.

Names of Researchers: Dr Dave Daley and Michelle O'Brien (PhD student), North Wales Clinical Psychology Programme.

Please tick each corresponding box

1. I confirm that I have spoken with a researcher and had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I can withdraw at anytime without giving a reason. ☐
3. I agree to take part in the interview about my opinion of the helpfulness of a self-help parenting intervention. ☐
4. I agree for the interview to be audio-recorded. ☐

Name of person giving consent .....

Date.....

Signature.....

Contact Details

Address.....

Post code.....

Telephone number.....

Mobile number.....