UNIVERSITY OF SOUTHAMPTON

DOES PARENTAL AD/HD EXACERBATE THE NEGATIVE EFFECTS OF CHILD AD/HD ON PARENTING?

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Ithaka

Setting out on the voyage to Ithaka
You must pray that the way be long,
Full of adventures and experiences.
The Laistrygonians and the Kyklopes,
Angry Poseidon, don't be afraid of them;
You will never find such things on your way,
If only your thoughts be high, and a select
Emotion touch your spirit and your body.
The Laistrygonians, the Kyklopes,
Poseidon raging – you will never meet them,
Unless you carry them with you in your soul,
If your soul does not raise them up before you.

You must pray that the way be long;
Many of the summer mornings
When with what pleasure, with what delight
You enter harbours never seen before;
At Phoenician trading stations you must stop,
And must acquire good merchandize,
Mother of pearl and coral, amber and ebony,
And sensuous perfumes of every kind;
As much as can get of sensuous perfumes,
You must go to many cities of Egypt,
To learn and still to learn from those who know.

You must always have Ithaka in your mind,
Arrival there is your predestination.
But do not hurry the journey at all.
Better that it should last many years;
Be quite old when you anchor at the island,
Rich with all you have gained on the way,
Not expecting Ithaka to give you riches.

Ithaka has given you your lovely journey.
Without Ithaka you would have not set out.
Ithaka has no more to give you now.

Poor though you find it, Ithaka has not cheated you.
Wise as you have become, with all your experience,
You will have understood the meaning of Ithaka.

Constantine Kavafis (1911)

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ABSTRACT

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DOES PARENTAL AD/HD EXACERBATE THE NEGATIVE EFFECTS OF CHILD AD/HD ON PARENTING?

By Lamprini Psychogiou

Children's AD/HD often elicits a negative parental response but little is known about the impact of parental AD/HD on parenting. In this thesis, I examined the impact of child and parental AD/HD and their interaction on parenting. In Study 1, these effects were examined using questionnaire-based measures of parenting provided by 95 mothers of school children. In Study 2, these self reports were replaced by direct observations of mother-child interactions and Expressed Emotion (EE) in 192 mothers of preschoolers. In Study 3, they were extended further by adding measures of empathy and by examining both mothers' (N= 277) and fathers' (N=86) parenting. The results demonstrated that child AD/HD symptoms were associated with negative parenting and hostile EE. Maternal AD/HD symptoms were positively associated with hostile EE, and negatively with empathy and positive parenting. Interestingly, mothers with high AD/HD symptoms had more positive and less negative parenting and personal distress for the children with high AD/HD symptoms. In contrast, fathers with high AD/HD symptoms had more negative parenting for the children with high AD/HD symptoms. These findings raised the question of whether the effects of child-parental similarity in AD/HD generalise to emotional/depressive characteristics. An analysis revealed that child-mother similarity in emotional/depressive characteristics decreased Negative Expressed Emotion (NEE). Indeed, mothers with high depressive characteristics displayed the same levels of NEE regardless of the severity of child emotional symptoms. The results of the thesis highlight the importance of taking account of maternal (and paternal) AD/HD when assessing the parenting of children with AD/HD. The findings may be especially significant in planning new clinical services and treatments for AD/HD.

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Chapter One: AD/HD in the Child and the Adult

1.1: Overview of Chapter 1

The aim of Chapter 1 is to present a review of the literature in the area of Attention-Deficit/Hyperactivity Disorder (AD/HD) and parenting. The Chapter initially describes the core characteristics of the disorder and its clinical impairments in childhood. Key longitudinal studies are described and the point is made that AD/HD often continues into adulthood. The chapter provides evidence from clinical correlates, family history, treatment response, laboratory studies and developmental outcomes that support the notion that AD/HD in adulthood is a valid disorder.

Chapter 1 also provides a review of the literature relating to the parenting of children with AD/HD. Studies suggest that during interactions children with AD/HD are less responsive, less compliant and misbehave more often (Mash & Johnston, 1982). Parents of children with AD/HD experience more parenting stress (Dupaul, McGoey, Eckert & VanBrakle, 2001) and less coping efficacy (Shelton, Barkley, Crosswait, Moorehouse, Fletcher, Barrett, Jenkins & Matevia, 1998), hold negative attributions for child misbehaviour (Henker, Whalen, Carter, Garland & Heller, 1996) and the parent-child relationship is characterised by conflict (Campbell, Pierce, March & Ewing, 1991). Although there is a lot of research about various parental characteristics that affect parenting, surprisingly, there is a lack of research on the parenting by adults with AD/HD. However, it was the purpose of the thesis to address this limitation.

1.2: Introduction to AD/HD

AD/HD is the most prevalent developmental disorder in child psychiatry and it has been the focus of intense research. AD/HD appears across the life span, and it affects children from pre-school to school age and through adolescence into adulthood, although there are age and gender related changes in its manifestation (Barkley, 1990). AD/HD manifests early in life before the age of 7 years (American Psychiatric Association, 1994) and approximately 2 % of children between 3 and 5 years old in the general population meet DSM-IV diagnostic criteria for AD/HD (Lavinge, Gibbons & Stein, 1996). During school age 3-5 % of children from the general population meet diagnostic criteria and it is three times more common in

boys than in girls (Barkley, 1990; American Psychiatric Association, 1994). The core symptoms of AD/HD are inattention, impulsiveness and hyperactivity:

1.2.1: Inattention

Inattention is viewed as one of the core symptoms of AD/HD. Inattention includes a number of symptoms, such as a) inability to complete two tasks at the same time (divided attention), b) inability to attend to the task at hand (focused attention), c) inability to ignore competing or irrelevant stimuli and d) inability to maintain attention when accomplishing a task (sustained attention). Parents and teachers often express complaints that children with AD/HD do not seem to listen as would be expected for their age, they cannot concentrate, and are easily distracted and fail to finish assignments. Also, they are forgetful and they tend to change activities more often than others (DuPaul, Anastopoulos, Power, Reid, Ikeda & McGoey, 1997). By using objective measures, research demonstrates that children with AD/HD have more "off-task" behaviour and reduced work productivity. They look away from assigned tasks, show less persistence at tedious tasks, return to an activity that is interrupted less often and more slowly, are less attentive to changes in the rules governing a task, and are less able to shift attention across tasks in a flexible way (Borger & van der Meere, 2000; Hoza, Pelham, Waschbusch, Kipp & Owens, 2001; Lorch, Milich, Sanchez, van der Broek, Baer, Hooks, Hartung & Welsh, 2000).

Douglas (1983) found that children with AD/HD have greatest difficulty with persistence of effort, or sustaining their attention to tasks. These difficulties are observed in free-play settings, as evidenced by shorter durations of play with each toy and frequent shifts in play across various toys (Sonuga-Barke, Daley, Thompson, Laver-Bradbury & Weeks, 2001; Zentall, 1985). Therefore, they are more observed in situations in which the child have to sustain attention to dull, boring, repetitive tasks including independent schoolwork, homework, or chore performance (Zentall, 1985).

1.2.2: Impulsiveness

Impulsivity is one of the core characteristics of the most commonly recognised subtypes of AD/HD. An impulsive response is a response that is executed without sufficient forethought, planning, or control, and consequently is inaccurate or maladaptive. Examples of impulsivity include 1) responding before instructions are provided or before a question is completed, 2) responding without first thinking about all possible response options, 3) failing to withhold a motor or cognitive response to a stimulus which is irrelevant or inappropriate and 4) acting before thinking about the

consequences of a socially offensive or aggressive behaviour. Impulsive (and hyperactive) behaviour is troublesome and annoying and teachers find impulsive behaviour particularly disruptive and often ask children to leave the classroom (Brook, Waterberg & Geva, 2000).

1.2.3: Hyperactivity

Hyperactivity is the third core characteristic of AD/HD. Individuals with AD/HD display excessive or developmentally inappropriate levels of activity, either motor or vocal. Direct observation and mechanical recordings (actometers) of activity demonstrate that, children rated as hyperactive based on parent and teacher questionnaires, have higher mean activity scores than control children. Restlessness, fidgeting, and generally unnecessary gross bodily movements are common characteristics of hyperactive children and these movements are often irrelevant to the task or situation and they appear to be purposeless (Barkley, 1979).

Studies have shown that children with AD/HD have higher actigraph scores in both clinical and naturalistic settings than control children (Halperin, Matier, Bedi, Sharma & Newcron, 1992; Halperin, Newcorn, Matier, Sharma, McKay & Schwartz, 1993). Dane, Schachar and Tannock (2000) using actigraph found that during the afternoon children with AD/HD were more active than controls. Hyperactive children have also been found to make more movements during their sleep than normal children (Taylor, Sandberg, Thorley & Giles, 1991). Parents and teachers mention that hyperactive children act as if driven by a motor. They are always on the go and they are unable to wait for events to occur.

1.3: Categories of AD/HD

The DSM-IV distinguishes three diagnostic categories of AD/HD:
(1) AD/HD, Combined Type, where the child displays at least six of the aforementioned symptoms of inattention and six of the aforementioned symptoms of hyperactivity-impulsivity.

(2) AD/HD, Predominantly Inattentive Type, where the child displays at least six of aforementioned symptoms of inattention, but does not meet diagnostic criteria for AD/HD Combined Type.

(3) AD/HD, Predominantly Hyperactive-Impulsive Type, where the child displays at least six of the aforementioned symptoms of hyperactivity-impulsivity but does not meet diagnostic criteria for AD/HD, Combined Type.

1.4: AD/HD and Psychiatric Comorbidity

There is considerable evidence that AD/HD co-exists with other psychiatric disorders. Family-genetic studies have found significantly higher rates of conduct disorder and affective disorders in AD/HD probands and in their families compared with controls (Biederman, Faraone, Keenan, Benjamin, Krifcher, Moore, Sprich, Ugaglia, Kellrek, Spencer, Norman, Kolodny, Kraus, Perrin, Keller & Tsuang, 1992). Between 50 and 80 % of children with AD/HD meet diagnostic criteria for at least one disorder. The most frequent comorbidity is observed between AD/HD and other disruptive behaviour disorders such as conduct disorder or Oppositional Defiant Disorder (ODD), which occur in approximately 40 to 80 % of cases according to different studies (Jensen, Martin & Cantwell, 1997). AD/HD also co-exists with mood disorders. Children with AD/HD are more likely to meet diagnostic criteria for one or more mood disorders than are control children, and this is particularly found in clinically based samples (Rey, 1994). Treuting and Hinshaw (2001) found that boys with AD/HD reported significantly more depressive symptoms than did control children.

1.5: AD/HD and Associated Problems

There are some authors who suggest that AD/HD is not a real disorder but indeed researchers and clinicians regard a behaviour that is lively as a disorder (Breggin, 1998; Kohn, 1989). They go on to suggest that such a diagnosis may be because parents or teachers display intolerance towards specific child behaviours or because children are raised in a family environment that does not provide love and affection (Breggin, 1998). Therefore, there is considerable evidence, which demonstrates that children with AD/HD have many cognitive, neurological, genetic, and behavioural differences in comparison to control children, and that children with AD/HD are at significant risk for many adverse developmental outcomes. Children with AD/HD, apart from an increased risk for psychiatric disorders, are more likely to experience a substantial array of developmental, social and health risks; these are discussed in the next sections:

1.5.1: Motor in-coordination

Studies using a variety of assessment techniques such as balance assessment, tests of fine motor gestures, or electronic or paper and pencil mazes, demonstrate that children with AD/HD are often less coordinated in these actions (Mariani & Barkley, 1997). Approximately as many as 60 % of children with AD/HD compared to 35 % of normal children may have poor motor coordination or developmental coordination disorder (Kadesjo & Gillberg, 2001).

1.5.2: Impaired academic functioning

The vast majority of clinic-referred children with AD/HD have difficulty with school performance. Hinshaw (1994) found that children with AD/HD often have lower scores on standardised achievement tests than control children. These differences are likely to be evident even in preschool children with AD/HD (Barkley, Shelton, Crosswait, Moorehouse, Fletcher, Barrett, Jenkins & Metevia, 2002) and it is likely that children with AD/HD have problems with the acquisition of academic skills and knowledge even before entry into school.

1.5.3: Reduced intelligence

Studies using clinical samples report that children with AD/HD have lower scores on intelligence tests, especially in verbal intelligence in comparison to control children (McGee, Williams & Feehan, 1992) with a difference of 7 to 10 standard score points. Furthermore, other studies with community samples (Peterson, Pine, Cohen & Brook, 2001) and samples of children with behavioural problems (Sonuga-Barke, Houlberg & Hall, 1994) demonstrate an inverse relation between AD/HD and intelligence.

1.5.4: Social problems

Children with AD/HD experience serious social problems and some researchers find it surprising that these problems are not included in the criteria for AD/HD (Wheeler & Carlson, 1994). Clark, Cheyne, Cunningham and Siegel (1988) reported higher levels of aggression, less joint activity, and less verbal reciprocity for dyads comprised of AD/HD and control children in comparison to dyads comprised of children without AD/HD. Children with AD/HD are often rejected and have fewer friends than children without AD/HD (Hinshaw & Melnick, 1995), they usually choose other children with AD/HD for play, and they have difficulty in regulating their emotions and sustaining associative play. These social problems are found to be resistant to both psychosocial and pharmacological treatment (Pelham & Lang, 1982) and they are expected to continue into adolescence.

1.5.5: Accident proneness

Studies have identified that up to 57 % of children with AD/HD are accident-prone based on parental reports, relative to 11 % or fewer of control children (Reebuy, 1997). Interestingly, children with AD/HD did not have less knowledge about safety, implying that teaching more knowledge about safety to these children may not be enough to decrease the risk of accidents of children with AD/HD (Mori & Peterson, 1995).

1.5.6: Sleep problems

Studies have found a relation between AD/HD and sleep disturbances (Gruber, Sadeh & Rativ, 2000). Corkum, Moldofsky, Hogg-Johnson, Humphries and Tannock (1999) found that sleep problems were evident twice as often in AD/HD children in comparison to control children. These problems are expressed as behavioural problems at bedtime, a longer time to fall asleep, instability of sleep duration, tiredness at awakening or frequent night waking.

1.6: Early Developmental Course and Child Outcomes

Up until now, there are not many studies that have examined early precursors of AD/HD, but the existing evidence suggests that highly arousable, irritable, and difficult to console infants are more likely to show problems during toddlerhood and the preschool years compared to children who are more tractable and less reactive during infancy (Sanson, Oberlaid, Pedlow & Prior, 1991). AD/HD might be viewed as the outcome of this high level of reactivity and negative affect, and low consolability that represents problems with regulation of attention, motor activity and impulsivity.

AD/HD symptoms are often present in toddlerhood or the preschool years (Applegate, Lahey, Hart, Waldman, Biederman, Hynd, Barkley, Ollendick, Frick, Greenhill, McBurnett, Newcorn, Kerdyk, Garfinkel & Shaffer, 1997). Campbell, March, Pierce, Ewing and Szumowski (1991) compared hard-to-manage pre-school children based on parent and teacher reports with control children matched in age. They found that hard-to-manage boys were more active during free play and structured tasks, were less focused during play, and more impulsive during a toy cleanup task. Also, during classroom time, they were more disruptive with peers and more non-compliant with teachers (Campbell, Pierce, March, Ewing & Szumowski, 1994). Thirty percent of boys who were found to have AD/HD symptoms continued to have such symptoms later when they were 9 years old. These children were found to

have severe problems with school and peer relationships. Furthermore, they were found to have poor school achievement and disruptive classroom behaviour (Barkley, 1996; Campbell, 1994).

It is likely that children with AD/HD may experience problems with the transition from preschool or kindergarten to first grade, where the expectations increase considerably. During the school years, children have to follow rules, cooperate with others, remain quiet, and all of these behaviours require a capacity for behavioural control and self-regulation. Children with AD/HD, especially the inattentive subtype, may have serious problems when they enter school as they also have to master reading and other academic skills (Applegate et al., 1997).

Follow-up studies of children with AD/HD found that problems persist across time and this was especially true for children with AD/HD with comorbid oppositional and aggressive behaviour, especially in children who were living in dysfunctional families. Biederman, Faraone, Milberger, Curtis, Chen, Marrs, Quellette, Moore and Spencer (1996) followed a large clinically diagnosed group of children with AD/HD up to 4 years after diagnosis. They found that 85 % of the sample continued to meet diagnostic criteria for AD/HD. Also, 70 % of this sample met criteria for ODD or conduct problems. Predictors of continuation of AD/HD included comorbid oppositional behaviour, a family history of AD/HD, and conflict in the family.

1.7: Developmental Course and Adult Outcomes

There are only a few longitudinal studies that have followed large samples of clinically referred children with AD/HD into adulthood. Specifically, four studies retained 50 % or more of their original samples into adulthood and they examined the persistence of AD/HD symptoms to that time. These studies are: the Montreal study by Weiss, Hetchman, Milroy and Perlan (1985); the New York study by Manuzza, Klein, Bessler, Malloy and LaPadula, (1993); Mannuzza, Klein, Bessler, Malloy and LaPadula (1998); the Swedish study by Rasmussen and Gillberg (2001) and the Milwaukee study by Barkley, Fischer, Smallish and Fletcher (2002).

A Montreal study found that two thirds of the original sample reported to have trouble as adults by at least one or more disabling core symptoms of their original disorder. Furthermore, 34 % of the sample had at least medium to high levels of AD/HD symptoms (Weiss & Hetchman, 1993). A Swedish study found similar results.

Specifically, 49 % of probands had marked symptoms of AD/HD when they were 22 years old in comparison to 9 % of controls (Rasmussen & Gilberg, 2001). In contrast, a New York study followed two separate cohorts of hyperactive children, using the DSM criteria to assess persistence of disorder. The results demonstrated that 31 % of the initial cohort and 43 % of the second cohort met DSM-III criteria for AD/HD by ages 16 to 23. Therefore, after eight years these percentages reduced to 8 % and 4 % respectively. Those figures might mean that the vast majority of hyperactive children did not have AD/HD when they were adults (Manuzza et al., 1993; 1998). Therefore, it is important to mention some methodological issues before interpreting these figures as low rates of persistence of AD/HD into adulthood.

For example, in the studies mentioned above, the source of information that assessed the disorder changed. Different sources of information were adopted in childhood and adolescence assessments and different to evaluate adult outcome. At the beginning of the studies and in adolescence, all studies were based on parents and teachers' reports. In young adulthood, the New York and Montreal studies used self-reports of AD/HD instead of reports from the parents and teachers. Therefore, this reduction in the persistence of AD/HD from adolescence to adulthood might be the outcome of change in the source of information.

In the Milwaukee study, both participants and parents' reports of AD/HD symptoms at the young adult follow-up (age 21 years) were used. The results demonstrated that based on self-reports 5 to 12 % of probands were identified with AD/HD (DSM-III-R), whereas based on the reports from parents the number increased from 46 to 66 %. Interestingly, the reports from the parents in comparison to self-report seemed to have greater validity, as in regard to their greater contribution to impairment and to more domains of current impairment (Barkley et al., 2002).

Despite this evidence, some researchers question the existence of the disorder into adulthood. The next sections examine evidence relating to the equivalence between child and adult AD/HD:

1.8: AD/HD and Psychiatric Comorbidity

AD/HD in adults often co-exists with other disorders. AD/HD is a risk factor for the development of antisocial and criminal behaviour. Biederman, Faraone, Spencer, Wilens, Norman, Lapey, Mick, Lehman and Doyle (1993) compared clinically referred

adults with AD/HD, children with AD/HD, non-referred AD/HD adults relatives of children with AD/HD, and adult relatives of control children. The results demonstrated that adults with AD/HD in comparison to normal controls had significantly higher rates of antisocial personality disorder, substance use, anxiety disorders, enuresis, stuttering, speech and language disorders. Also, data from court records report that adolescent youths with AD/HD were four to five times more likely to be arrested, and to have a number of multiple arrests and convictions (Satterfield, Swanson, Schell & Lee, 1994). Data from the United States and Sweden report that 25 % of prison inmates met AD/HD criteria in adulthood (Dalteg, Lindgren & Lavander, 1999). Biederman, Faraone, Spencer, Wilens, Mick and Lapey (1994) found that both males and females with AD/HD had higher lifetime rates of major depression, oppositional disorder, drug dependence, agoraphobia, and social phobia.

Therefore, this psychiatric comorbidity provides ambiguous support for validity. Some clinicians regard comorbid disorders as mimicking AD/HD, and thus, provide an explanation for the poor functioning of these adults. Others argue that comorbidity is evident in children with AD/HD and the comorbidity in adults provides support that the adult and child syndrome are the same (Spencer, Biederman, Wilens & Faraone, 1994).

1.9: Family History, Treatment Response, and Laboratory Studies

Studies demonstrate that AD/HD is familial and they provide further support for the validity of AD/HD (Faraone & Biederman, 1994). Seven family studies have shown that parents of children with AD/HD have significantly increased risk for AD/HD. For fathers, the mean prevalence was 24.5 % for AD/HD families and 7 % for control families, and for mothers, the prevalence rates were15 and 3 %, respectively. Studies of families of adult AD/HD patients found higher rates of AD/HD among their relatives (mean=49 %) compared with control participants (mean=2.5 %).

Other evidence comes from psychopharmacological studies, which make a comparison between children and adults in regard to treatment response. The results revealed a response rate of 50 % in adults and a response rate of 70 % in children, which is a much higher figure. Therefore, it is worth mentioning that when a higher dose was used the figure increased to 87 % in adults with AD/HD and that only 13 % responded to placebo (Spencer, Wilens, Biederman, Faraone, Ablon & Lapey, 1995).

Other evidence comes from similarities in several neuropsychological abilities between children and adults with AD/HD. Furthermore, brain-imagining studies of adults with AD/HD show abnormalities of brain regions that have been implicated in the aetiology of AD/HD in studies of children.

Finally, molecular genetic studies of children have implicated several genes in the aetiology of AD/HD (Faraone & Biederman, 1998). Particular emphasis has been put on the gene that controls the D4 dopamine receptor (DRD4). This receptor is a component of neurons that are activated by the neurochemical dopamine, which is involved in AD/HD. Specifically, the gene variant of DRD4 associated with AD/HD mediates a blunted response to dopamine, and this is a reasonable candidate as a susceptibility gene for AD/HD. The DRD4 data are relevant to adult AD/HD because the gene variant involved in children is also involved in adults with AD/HD (Faraone, Tsuang & Tsuang, 1999).

1.10: Age of Onset of AD/HD

The major classificatory systems, such as the ICD-10 and DSM-IV, include the age of onset criterion (AOC) requiring clinically relevant symptoms to emerge prior to age 7. Therefore, in clinical practice, it is not easy to establish this AOC because AD/HD in many cases was not identified during childhood. Hesslinger, van Elst, Mochan and Ebert (2003) conducted a retrospective study in adults with AD/HD. The results showed that 28 % described late onset and 8 % of the total sample was confirmed by the use of parental reports.

Although some evidence suggests that AD/HD decreases as age increases, age of onset studies have found that AD/HD may increase with age for a small proportion of youth. Age of onset studies are studies that have evaluated the utility of the age of onset criterion for making diagnosis of AD/HD (e.g., symptoms are required to be present before 7 for a diagnosis to be made; American Psychiatric Association, 1994). Some of these studies identified elevated levels of AD/HD that were first reported to emerge after age seven, often as late as adolescence (Apllegate et al., 1997; McGee et al., 1992; Willoughby, Curran, Costello & Angold, 2000). Schaughency, McGee, Raja, Feehan and Silva (1994) identified a sub-group of adolescents that reported high levels of AD/HD symptoms but who did not have a history of AD/HD in childhood. Similarly, Cuffe, McKeown, Jackson, Addy, Abramson

and Garrison (2001) found that the prevalence of AD/HD in a community-based study of older adolescents doubled if late onset counted towards diagnosis.

Finally, in a follow-up study Minde, Weiss and Mendelson (1972) identified 20 children from a larger sample of 104, who displayed an increase in AD/HD symptoms and/or aggressive behaviours over time. Minde et al., (1972) suggested that a small number of youth might exhibit increases, rather than decreases, in the AD/HD symptomatology.

1.11: Clinical Impairments of AD/HD into Adulthood

If AD/HD in adulthood is a clinically significant disorder, then adults with AD/HD should show significant impairments in many domains of functioning. Several studies have shown this to be so and they are described in the next sections:

1.11.1: Academic achievement

Biederman at al., (1994) compared adults with AD/HD with controls and they found that adults with AD/HD had significantly higher rates of repeated grades, tutoring, placement in special classes, and reading disability. Murphy and Barkley (1996) found that adults with AD/HD had poorer educational performance and more frequent school disciplinary action against them. In another study, Morrison (1980) compared adults with AD/HD with psychiatric controls matched for age and gender. The results revealed that the adults with AD/HD had fewer years of education, and lower levels of professional employment.

1.11.2: Occupational status

Studies that have examined the occupational functioning of adults with AD/HD have focused on adults in their mid to late twenties (mean age 26) with a history of AD/HD during childhood. They found that adults with AD/HD had less occupational achievement than controls as measured by occupational rank (Slomkowski, Klein & Manuzza, 1995). Employers commented that adults with AD/HD had mediocre work performance, problems with task completion, lack of independent skills, and they had bad relationships with supervisors (Weiss & Hetchman, 1986). Also, adults with AD/HD were more likely to quit, change job and be laid off (Weiss & Hetchman, 1993). However, they were as likely as controls to be employed and self-supporting.

1.11.3: Interpersonal relationships

Adults with AD/HD have been found to have problems with interpersonal relationships. In a prospective study, Young (1999) found that hyperactivity in girls was a risk factor for poor social interaction with the opposite sex. Biederman et al., (1993) found that adults with AD/HD were more likely to get divorced or separated. Weiss and Hetchman (1993) suggested that impatience, poor problem-solving skills, poor listening, inadequate planning, difficulty finishing household projects, and sexual problems have been found in case studies of individuals with AD/HD.

1.12: Introduction to Parenting

Parenting is a critically important domain of influence on children's behavioural adjustment (Baumrind, 1993; Campbell, 1995; Patterson, 1997; Rothbaum & Weisz, 1994). Perhaps the most well known conceptualisation of parenting is that of Baumrind's (1967), who argues that effective parenting consists of multiple elements that are mixed together to shape distinct styles. Baumrind (1967) identifies three dimensions of parenting: authoritative, authoritarian and permissive parenting. Authoritative parenting is characterised by a high degree of warmth, firm and fair control and the use of explanations and reasoning. Authoritarian parenting is characterised by over-control, unfair or harsh discipline and inflexible enforcement of rules. Permissive parenting is characterised by under involvement, inconsistent discipline, use of indirect commands, attempts to argue or coax children and arbitrary responses to misbehaviour.

Research relating to the parenting of children with behaviour problems shows that children behaviour problems negatively influence parenting and that parents of children with behaviour problems often experience personal distress (DuPaul et al., 2001) and that they are likely to suffer from other disorders, such as depression or conduct disorders (Biederman et al., 1992), which might further undermine their ability to parent their child effectively. On the other hand, some parents may respond to their children in a way that exacerbates existing child behaviour problems and/or contributes to the development of co-existing problems.

As far as the cause-effect relationship is concerned, it is likely that the relationship between child behaviour problems and impaired parenting may result from both the child's influence on the parents' behaviour as well as the parent's influence on the child's behaviour. Some research has emphasised the parents' effects on the child

and the parents' influence on child behaviour (Barkley, Fischer, Edelbrock & Smallish, 1991; Mash & Johnston, 1982). Other research has emphasised the influence of child effects (Bell, 1968), and has provided evidence that genetically transmitted characteristics of the child shape in an active way their environment and the parents' behaviour (Ge, Conger, Cadoret, Neiderhiser, Yates, Troughton & Stewart, 1996; O' Connor, Deater-Deckard, Fulker, Rutter & Plomin, 1998). It is most likely though that today research in parenting relies on an interactionist and reciprocal view, in which each member in a relationship is a significant element of the other's environment to which each member of the relationship must adapt.

The present thesis adopts such an interactionist view and examines AD/HD in the child and parent and their mutual effects on parenting and child behaviour. There are sound reasons why it is important to examine AD/HD in both parent and offspring, as research demonstrates that most types of childhood psychopathology have moderate to large genetic components. Wamboldt and Wamboldt (2000) found that heritability estimates have ranged from 54 to 82 % for AD/HD, 21 to 74 % for behaviour disorders, and 11 to 72 % for internalising disorders. Differences in the prevalence rates are due to the source of information with higher figures observed in studies using parent report measures and the lower figures in observational ones. Parenting measures account for approximately 20 to 50 % of the variance in child outcome (Conger, Ge, Elder, Lorenz & Simons, 1994; Reiss, Hetherington, Plomin, Howe, Simmens, Henderson, O' Connor, Bussell, Anderson & Law, 1995). Due to high heritability of AD/HD, it is expected that there will be families in which both parents and offspring have AD/HD. The next sections present a review focused on (1) the effects of child AD/HD on parenting and the psychological functioning of their parents, (2) the parental reactions to the child with AD/HD and (3) the broader context of parenting in which multiple risk factors may interact influencing child adjustment:

1.12.1: Child effects

Parent-child interaction difficulties in families of children with AD/HD have been observed across a wide developmental range, from preschool through adolescence. During parent-child interactions, children with AD/HD exhibit more negative behaviours than control children. Studies comparing interactions of mothers and their children with AD/HD to those of mothers and their children without AD/HD found that children with AD/HD were more active, less often on task, less compliant, and less

responsive than control children (Befera & Barkley, 1985; Mash & Johnston, 1982; Cunningham & Barkley, 1979).

Podolski and Nigg (2001) reported that mothers and fathers of children with AD/HD expressed more role dissatisfaction than parents of children without AD/HD. Shelton et al., (1998) reported decreased parenting satisfaction and efficacy among mothers of preschool children with AD/HD and aggressive children compared to mothers of control children. Mash and Johnston (1983) demonstrated that sense of parenting competence was lower in mothers of children with AD/HD, particularly older children, than in mothers of children without AD/HD.

Furthermore, many studies report high levels of parenting stress in parents of children with AD/HD. Parenting stress was found to be high across child ages, for boys and girls, for children with different levels of symptomatology, and for mothers and fathers (Baker, 1994; DuPaul et al., 2001; Shelton et al., 1998). Mash and Johnston (1983) reported that parenting stress in all domains was significantly elevated in mothers of children with AD/HD and the highest level of stress was reported in mothers of pre-school children. In addition, maternal reports of parenting stress were related to observed difficulties in the interaction of children with AD/HD and their siblings.

It is worth mentioning, however, that the most compelling link is evident in the families of those children who have AD/HD with comorbid conduct problems. Anastopoulos, Guevremont, Shelton and DuPaul (1992) found that in families with a child with AD/HD, it was the child oppositional defiant behaviour that predicted parenting stress. In another study, Johnston (1996) examined parent characteristics and parent-child interactions in families of children with AD/HD who had either higher or lower ODD and controls. The results revealed that parents in both AD/HD groups adopted more negative/reactive and fewer positive parenting strategies compared to the control group. The two AD/HD groups did not differ significantly in parenting behaviours, but parenting self-esteem was lower in the group with AD/HD and high ODD. The studies suggest that it is important to assess AD/HD but also any comorbid conditions that may put an additional burden on the parents.

Other studies have used the measure of Expressed Emotion (EE; Vaughn & Leff, 1976) to tap parenting or the emotional climate at home. EE has the methodological advantage that it may represent "unshared variance". In particular, it is a potential

attitude directed to one child only and it might differ from measures of psychosocial adversity such as divorce, marital conflict, that seem to affect all children in the same family (Hirshfeld, Biederman, Brody, Faraone & Rosenbaum, 1997). Also, previous studies reported significant correlations between EE and observational data. For example, Marshall, Longwell, Goldstein and Swanson (1990), in a sample of boys with AD/HD aged between 6 to 15 years old, found an association between EE and parent-child interactions. Parents with high levels of EE demonstrated more verbal coercion and more negative affective style during interactions.

Daley (1999), using a pre-school sample, found that high levels of EE was associated with more symptoms of AD/HD, and greater problems in the social domain, lower parenting self-esteem, and higher levels of negativity in relation to the impact of the child on the family. Hibbs, Hamburger, Lenane, Rapoport, Kruesi, Leysor and Goldstein, (1990) demonstrated that mothers were more likely to be critical toward their child with AD/HD than toward the offspring without the disorder. Both prospective and retrospective studies using clinic and community samples reveal associations between parental EE and the presence, course and outcome of problems in children and adolescents. Peris and Baker (2000) found that EE at the preschool age was predictive of AD/HD symptoms and a diagnosis of AD/HD at third grade and this relationship remained as the children entered elementary school. In another study, Taylor, Chadwick, Heptinstall and Danckaerts (1996) examined the effects of EE on the course of AD/HD symptoms. The results revealed that low levels of affection/warmth and high levels of hostile/critical EE when the child was 7 years old, significantly predicted the course of AD/HD and also the extent to which children with AD/HD developed conduct disorder.

1.12.2: Adult effects

Whereas AD/HD symptoms in the child seem to increase parenting stress and lead to difficulties in parent-child interactions, it is also very likely that parents react in a way that exacerbates the negative behaviours exhibited by children with AD/HD. For example, there is a lot of evidence that during parent-child interactions parents of children with AD/HD are more negative than parents of control children. Compared to mothers of control children, mothers of children with AD/HD were found to exert more control and structure, initiate fewer interactions and offer fewer positive and more negative responses to their children (Campbell et al., 1991; Mash & Johnston, 1982). Also, mothers of hard to manage preschoolers were found to respond to non-compliance with power-assertive behaviours such as yelling or grabbing (Lee &

Bates, 1985). Buhrmester, Camparo, Christensen, Shapiro-Gonzalez and Hinshaw (1992) examined parent-son interactions and found that parents of boys with AD/HD were more demanding, aversive, and power assertive than parents of control boys. Other studies demonstrate that mothers of preschoolers with behavioural problems monitor their children's behaviour less (Patterson, Dishion & Bank, 1984), are more ambiguous and inconsistent in their responses to problem behaviour (Delfini, Bernal & Rosen, 1976), and are more likely to use coaxing to gain compliance (Forehand, King, Peed & Yoder, 1975).

There is some evidence that these difficulties usually persist into adolescence. Barkley et al., (1991) found that when mothers interacted with their adolescents with AD/HD, especially adolescents with AD/HD and ODD, they displayed higher rates of negative, controlling behaviour, and more conflict. Also, they displayed less positive and facilitating behaviours in comparison to control dyads. Furthermore, studies suggest that parents of children with AD/HD adopt an inconsistent style of parenting. In an observational study, Gardner (1989) found that mothers of pre-school children with behaviour problems were more inconsistent in follow-through of their commands than mothers of children without behavioural problems. Patterson (1986) reported that parents' failure to follow through with commands brought about reinforcement of child non-compliance. Such a failure increased the likelihood that child non-compliance would be repeated and in the future it might escalate.

Alternatively, the "predictability hypothesis", (Wahler & Dumas, 1986) suggests that, when children experience parental unpredictability and inconsistency, children exhibit oppositional and defiant behaviours because such behaviours might elicit predictable responses from their parents. This style of interaction is likely to have a profound negative impact on the child as evidence shows that inconsistency is associated with elevated rates of child oppositional and aggressive behaviour (Wahler & Dumas, 1986).

Also, parents of children with AD/HD express lower levels of affection when they interact with their children with AD/HD (Russell & Russell, 1996; Marshall, Longwell, Goldstein & Swanson, 1990), which might contribute to the development of co-existing problems. Parental warmth/affection is considered as important social and emotional resource that allows children to explore their environments and, consequently, they may be related to the development of feelings of security, trust, and positive orientation towards others (Bowlby, 1969). In contrast, evidence

suggests that lack of warmth and supportiveness are linked with child insecurity and emotion regulation difficulties, and behavioural problems including frequent child temper tantrums, whining, stubbornness and non-compliance (Keenan & Shaw, 1994).

Other differences relate to the expectations parents of children with AD/HD hold for their children. Sonuga-Barke and Goldfoot (1995) found that mothers of boys with AD/HD had lower expectancies for their own children's development than mothers of children without AD/HD, although there were no significant differences in mothers' expectations for the development of a child without AD/HD. Henker et al., (1996) compared the causal attributions of parents with school age boys with AD/HD and controls. They found that parents of boys with AD/HD generated a larger number of causal attributions to explain the behaviour of their child, and they gave their children less credit for positive behaviour than the control parents. Also, they were more likely to attribute their child's good behaviours to themselves rather than to their child.

Consistent with these findings, Johnston and Freeman (1997) found that parents of children with AD/HD compared to controls, perceived the prosocial behaviour of their own child as less internal and less stable. Cornah, Sonuga-Barke, Stevenson and Thompson (2003) found that mothers with mental health problems made the same number of attributions about negative behaviours as control mothers, but they differed in that, mothers with mental health problems made more internal and global attributions. In the future, it will be important to examine if the negative parental attributions affect the cognitive style of children with AD/HD. Evidence suggests that boys with externalising problems fail to distinguish between hostile and ambiguous situations and they tend to infer hostile intentions (Crick & Dodge, 1994). It is likely that parental negative and hostile attributional reasoning may maintain negative and coercive patterns of interaction, and may also encourage dysfunctional cognitions in their children probably through mechanisms such as modelling and reinforcement.

1.12.3: Context effects

The review above shows that child AD/HD negatively influences parenting and that parents often respond negatively to child misbehaviour. However, parenting has a variety of determinants and it is influenced by factors, such as marital conflict (Barkley, Fisher & Smallish, 1990; Jouriles, Murphy, Farris, Smith, Richters & Waters, 1991), lack of social support, economic hardship as well as genetic factors (Kendler, Sham & McLean, 1997). Some studies suggest that quite a few children

with AD/HD are brought up in riskier environments and families with multiple problems.

Specifically, a substantial number of studies reveal an association between AD/HD in school age children and family adversity (Campbell, 1990). Studies have identified marital problems and family break-up (Barkley et al., 1990), and parental disagreement over child rearing (Jouriles et al., 1991). Also, research has identified more family psychopathology, especially mood disorders, anxiety disorders, and antisocial personality disorder and substance abuse in families of children with AD/HD (Biederman et al., 1992).

With regard to psychopathology, Epstein, Coners, Erhardt, Arnold, Hetchman, Hinshaw, Hoza, Newcorn, Swanson and Vitiello (2000) examined familial aggregation of AD/HD symptoms in parents of children with AD/HD and controls. Results indicated that the parents of children with AD/HD had higher ratings of AD/HD symptoms, emotional liability, and lower self-concept than parents of children without the disorder by using both self-report and other-report ratings. Weinstein, Apfel and Weinstein (1998) investigated differences in terms of personality traits and background variables in three groups: mothers with AD/HD themselves and with AD/HD children, mothers with AD/HD but without AD/HD children, and mothers without AD/HD with non AD/HD children. Results indicated that mothers with AD/HD had higher scores on measures of retrospective AD/HD, neuroticism, and conscientiousness. Also, the results revealed that neuro-psychiatric disorders and alcoholism in the family of origin were higher in the mothers with AD/HD with AD/HD children.

Taken together, the findings suggest that children with AD/HD might grow up in more dysfunctional families. However, it is difficult to determine cause-effect relations among variables. On the one hand, some studies suggest that inconsistent and harsh parenting and negative engagement contribute to the escalation of non-compliance, aggression and problems with self-regulation in young children with behaviour problems (Anderson, Hinshaw & Simmel, 1994; Campbell, Pierce, Moore, Marakovitz & Newby, 1996). On the other hand, some studies suggest the reverse; child non-compliance and misbehaviour lead to the escalation of angry and controlling parental behaviour (Lytton, 1990; Barkley, 1990). From a transactional and interactionist perspective, it seems logical to think that both processes are happening at the same time (Barkley, 1996). Negative and harsh parental behaviour

results in escalation of non-compliance on the part of the child, and the child's difficult and uncontrollable behaviour results in parental intensive attempts at limit setting and control.

Similarly, problems in the marital relationship such as disagreement about child rearing and marital conflict and family break-up, may be, to some extent, the result of parenting a child with behavioural problems, but also a significant contributor to the child's distress (Cummings & Davis, 1994). In addition, although psychopathology in parents are not likely to be the result of child behavioural problems, there is some evidence that self-reported depression and alcohol consumption may escalate when the child is difficult to manage (Pelham & Lang, 1993; Cunningham, Benness & Siegel, 1988). These findings underscore the complexity and the difficulty in disentangling cause-effect relations. They also highlight the fact that risk factors tend to occur together (Sameroff, Seifer, Baldwin & Baldwin, 1993) with child behavioural problems, marital problems, parental psychopathology, and negative life events often being present within the same family.

In empirical support of this co-occurrence of risk factors, Carlson, Jacobvitz and Sroufe (1995) examined the stability of AD/HD symptoms in children from low socio-economic status during the preschool and early elementary years and again during middle childhood. Results revealed that mothers' anxiety and aggression, care-giving behaviours, and contextual factors predicted the development and stability of AD/HD during childhood. Parental teasing or provoking was regarded to cause problems in the child's development of arousal regulation and self-control. Also, the relationship status when the child was born (married or long-term relationship versus single, divorced, or long-term separation) and the quality of emotional support provided to the mother were related to AD/HD.

1.13: Parenting Children with AD/HD: The Role of Parental AD/HD

Characteristics of the parents can be a significant contributor to parenting. For example, depression and anxiety are very important in this regard. Depression is associated with childhood behaviour problems with this link being predicted by difficult child temperament and mediated by a pattern of disengaged and ineffective parenting (Murray, Fiori-Cowley, Hooper & Cooper, 1996). For mothers who have children with externalising problems, it has been shown that parental anxiety is associated with low parental warmth, intrusiveness and negative discipline (Kashdan,

Jacob, Pelham, Lang, Hoza, Blumenthal & Gnagy, 2004). Other characteristics, such as a sense of hope (the tendency to initiate and sustain effort towards goals) are associated with good parental and family functioning (Kashdan, Pelham, Lang, Hoza, Jennings, Blumenthal & Gnagy, 2002). High neuroticism or negative emotionality relates to less competent parenting, more power-assertive disciplinary practices and low responsiveness and warmth (Belsky, Crnick & Woodworth, 1995; Clark, Kochanska & Ready, 2000).

Another parental characteristic that may significantly affect parenting is AD/HD. AD/HD in adults has largely escaped scrutiny despite the fact that researchers and clinicians document difficulties that adults with AD/HD are likely to have in interpersonal and other areas of functioning (Biederman et al., 1993; Slomkowski et al., 1995; Murphy & Barkley, 1996). Given the familiarity of AD/HD and the impact it may have on parenting, it is surprising that parental AD/HD has not been more frequently studied. The familial basis of AD/HD means that children with the condition are more likely to have a parent with AD/HD than are other children (Smalley, McGough, Del' Homme, Newdelman, Gordon, Kim, Liu & McCracken, 2000; Biederman et al., 1992). Rietveld, Hudziak, Bartels, Beijsterveldt & Boosma (2004) found that heritability of overactivity and attention problems was estimated at nearly 75 % in a twin sample when children were 3, 7, 10 and 12 years old. The effects were found to be heritable at all ages and in both boys and girls.

Where this occurs one would expect the impulsive and dysregulated style of behaviour associated with AD/HD to represent a prima facae impediment to the use of organised, authoritative and proactive parenting so important in the effective management of difficult children (Sonuga-Barke et al., 2001). This is born out by the small number of studies that have examined parenting in adults with AD/HD.

Arnold, O' Leary and Edwards (1997) examined the moderating effects of father's AD/HD symptomatology on the relationship between fathers' involvement and self-reported parenting of the child with AD/HD. The results revealed that AD/HD symptoms in fathers limited the patience of fathers as well as their capacity to use effective parenting strategies.

Harvey, Danforth, McKee, Ulaszek and Friedman (2003) examined the association between parental AD/HD and parent-child behaviour in a sample of 46 mothers and 26 fathers of children with AD/HD. The results revealed that fathers' symptoms of

inattention and impulsivity (based on self-reports) were significantly and strongly associated with lax parenting (based again on self-reports) both before and after parent training. Also, fathers' symptoms of impulsivity were associated with more arguments during parent-child interaction before participation in the parent training. Mothers' symptoms of inattention (based on self reports) were modestly associated with lax parenting before and after parent training (based on self-reports). Interestingly, before the parent training, there were non-linear relations between mothers' inattention and observations of mother-child behaviour. The results revealed that mothers who reported medium levels of inattention displayed the most negative parent-child interactions. After parent training, these relations were linear. It was mothers with the highest self-reported symptoms of inattention who displayed the most negative parent-child interactions. These results remained significant, even though they were less strong, when parental depression and alcohol use were taken into account.

Evans, Vallano and Pelham (1994) in a double-blind placebo-control single subject study found that maternal AD/HD symptoms prevented the mother from using effective parental monitoring and also prevented her from implementing consistently constructive management techniques. Therefore, after medication with methylphenidate, the mother improved in her ability to manage her son with AD/HD.

It is worth mentioning that AD/HD symptoms in adults might not only affect parenting but treatment of childhood AD/HD as well (Evans et al., 1994). Although it may affect all kind of treatments, including psychopharmacological interventions, it is likely that its greatest effect occur on parent training programmes. Weiss, Hetchman and Weiss (2000) mentioned a number of reasons why parental AD/HD might have an impact on parent-training programmes. These included 1) difficulty in both following and following through on instructions, 2) decreased levels of adherence to the treatment, 3) a tendency to impulsively switch to alternative plans that promise quick cures, 4) being disruptive, disorganised and argumentative, especially in group settings, 5) difficulties with implementing token economies and the provision of consistent rewards and 6) low levels of therapeutic alliance/ diminished co-operation with the therapist.

Taken together, the data suggests that AD/HD in adults may have a substantial detrimental impact on parenting and possibly on treatment programmes, and for these reasons, it needs further examination. It is not known yet how AD/HD

symptoms bring about negative consequences on parenting. Kendziora and O' Leary (1993) suggested that AD/HD might put the parent at risk for using harsh and/or lax parenting which has been consistently associated with child behaviour problems. In addition, they went on to suggest that lack of impulse control might make it difficult for parents to avoid the expression of negative emotions during discipline encounters. Impulsivity may also lead to permissiveness, and parents with symptoms of impulsivity may be more likely to place short-term goals ahead of long-term goals. In a similar fashion, parents with AD/HD may have difficulty in using consistent monitoring of the child's behaviour. Consistency and enforcement of rules requires the parent to be able to pay attention to what the child is doing and also to remember what the child is supposed to be doing.

1.14: Joint Effects of Child and Parental AD/HD Symptoms on Parenting

In relation to the joint effects of joint and parental AD/HD symptoms on parenting two competing predictions are presented in the thesis. The first hypothesis is that the presence of adult AD/HD symptoms would exacerbate the impact of child AD/HD symptoms on parenting. This prediction is based on the assumption that the additional challenges associated with managing an AD/HD child would add significantly to the parenting burden and overwhelm the organisational and regulatory resources of mothers with AD/HD symptoms.

The second hypothesis relies theoretically on the social psychology literature. The attraction hypothesis (Byrne, Clore & Smeaton, 1986) suggests that people avoid relating themselves with people who are not similar with them and they are usually drawn to those who are most similar. Empirical evidence supports the attraction hypothesis and demonstrates that similarity in various characteristics leads to positive outcomes. For example, similarity in attitudes, intellectual ability, and demographic variables appear to promote attraction between strangers (Berscheid & Walster, 1983; Byrne, 1971; Fehr, 1996), possibly because similarity promotes validation of one's views of the world, and also because shared beliefs create less opportunities for disagreements and conflicts (Byrne, 1971; Berscheid, 1985).

Other studies demonstrate that mated pairs are more similar physically and psychologically than would be expected if they were chosen at random (Buss & Barnes, 1986). In another study, Klohmen and Luo (2003) found that individuals' were more attracted to those partners who had the same attachment characteristics

as themselves, and participants were least attracted to individuals who had most dissimilar attachment characteristics. Thomas and Chess (1977) suggested that a similarity or "goodness of fit" between parent and child temperament could promote more positive adjustment in both parents and children.

The perception of similarity between the self and others might facilitate one to take others' perspectives (Cialdini, Brown, Lewis, Luce & Neuberg, 1997), to create experiences of empathic emotions (Cialdini et al., 1997; Davis, Conklin, Smith & Luce, 1996), and as a consequence, to increase the likelihood that the individual will provide help when one is in need (Batson, Fultz & Schoenrade, 1987). Other empirical evidence suggests that similarity among relationship partners in many domains results in greater relationship cohesion and stability (Acitelli, Kenny & Weiner, 2001; Burleson & Denton, 1992). On the other hand, the repulsion hypothesis suggests that similarity does not necessarily promote satisfaction, but that dissimilarity usually decreases satisfaction (Rosenbaum, 1986).

1.15: Summary and Aim of Study 1

In summary, Chapter 1 integrated theoretical and research findings relating to AD/HD and the parenting of children with AD/HD. There is robust evidence now that symptoms of inattention, hyperactivity and impulsivity have a detrimental impact on the parenting and the psychological well being of parents of children with AD/HD. Similarly, the limited amount of research examining the effects of parental AD/HD suggests that AD/HD in parents bring about negative consequences on parenting as well. Still there is a paucity of research about the parenting of children with AD/HD with AD/HD parents. This thesis examines the parenting of children with high AD/HD symptoms by parents with high AD/HD symptoms. Chapter 2 provides an overview of the empirical studies presented in the thesis.

Chapter Two: Summary and Overview of the Empirical Chapters

2.1: Overview of the Thesis

The purpose of the thesis is to examine the parenting of mothers with high AD/HD symptoms towards their children with high AD/HD symptoms. It is generally accepted that AD/HD in the child is associated with negative parenting practices (Keown & Woodward, 2002; Stormshak, Bierman, McMahonand & Lengua, 2000). In addition, previous research has found that parental AD/HD has a negative effect on parenting. For example, a number of studies have highlighted that parental AD/HD is often associated with increased negligence and intolerance in parenting, as well as a lack of reflection about the parenting role (Harvey et al., 2003; Evans et al., 1994; Arnold et al., 1997).

It was predicted that the research in this thesis would support previous studies to demonstrate increased negative parenting in children with AD/HD. In addition, and consistent with past research, it hypothesised a negative impact on parenting in parents who have AD/HD themselves in relation to their child with AD/HD. Specifically, that parental AD/HD symptoms would be associated with negative parenting and child AD/HD would further challenge the resources of mothers who were already having to cope with their own AD/HD resulting in a further increase in negative parenting of this child.

The social psychological literature has, however, highlighted that people generally avoid relating to people who are dissimilar to themselves and are drawn to those who are similar – the attraction hypothesis (Byrne et al., 1986; Berscheid, 1985). The attraction hypothesis raises a further prediction in the relationship of parent and child with AD/HD. It suggests that the mutual influence and similarity between the child and parent with AD/HD could be associated with increased positive outcomes in parenting for the child with AD/HD.

The thesis presents a series of studies which aim to explore the complex interrelationships between parenting in relation to parents and their children with AD/HD. It will aim to replicate and extend previous research to consider the possibility that the negative pattern associated with parenting in parents with AD/HD and in children with AD/HD can be moderated by the co-occurrence of AD/HD in this parent-child relationship.

2.1.1: Study 1

The aims of the first study were to examine: the association between child AD/HD symptoms and parenting; and between maternal AD/HD symptoms and parenting. In addition, it explored the mutual influence between child and maternal AD/HD symptoms in predicting parenting.

The sample consisted of 95 children. Mothers completed questionnaires about their child and their own AD/HD symptoms, as well as their parenting. The results found that child AD/HD and maternal AD/HD symptoms were associated with negative parenting practices. In addition, child AD/HD symptoms interacted with maternal AD/HD symptoms in increasing positive parenting. These findings did not provided support for the prediction of the increased negative effect on parenting of the child with AD/HD by mothers with AD/HD. Inspection of the graphs highlighted only partial support for the attraction hypothesis. When mothers with low or medium AD/HD symptoms had children with low or medium AD/HD symptoms positive parenting did not increase. The group with high AD/HD symptoms in both the mother and child, however, did experience more positive parenting.

2.1.2: Study 2

The aims of the second study were to examine: the association between child AD/HD symptoms and parenting; and between maternal AD/HD symptoms and parenting. Mutual influences between child and maternal AD/HD symptoms in predicting parenting were also investigated.

This study specifically aimed to extend the participant age ranges looked at in Study 1 and to address a number of limitations with Study 1. The sample in Study 2 consisted of preschool instead of school age children. There are good reasons to extend the age range in Study 1 to look at preschoolers. Evidence suggests that symptoms of inattention, hyperactivity and impulsivity cluster in preschool and school age children (Fantuzzo, Grim, Mordell, McDermott, Miller, & Coolahan, 2001). As a result of including a preschool population in the age population different questionnaires were used in this study to measure AD/HD, as well as potential comorbid problems. Study 2 used the Werry-Weiss-Peters Hyperactivity questionnaire (WWP; Routh, 1978) to measure child AD/HD. This measure provides an indication of hyperactive behaviours in a number of different settings. Comorbid problems were measured with the Behaviour Checklist (BCL; Sonuga-Barke, Thompson, Stevenson & Viney, 1997).

Additional measures were added to Study 2 to provide further information about parenting. One limitation of the use of a questionnaire in Study 1 to measure parenting is that responses parents provide are influenced by factors such as attributions of child misbehaviour, expectations about child development, and maternal depression (Eddy, Dishion & Stoolmiller, 1998; Fergusson, Lynskey & Horwood, 1993). In Study 2, an additional and more objective measure of parenting was added where parenting was assessed through observational data of 192 mother-child interactions during play. In addition, this study also assessed the emotional climate at home through a measurement of Expressed Emotion (EE; Vaughn & Leff, 1976).

Study 2 predicted that child and maternal AD/HD symptoms would be associated with negative parenting practices. Based on the results from Study 1, it was also predicted that child AD/HD and maternal AD/HD symptoms would interact with each other to increase positive parenting. The results of Study 2 replicated those of Study 1 to highlight an association between child AD/HD symptoms and maternal AD/HD symptoms with negative parenting practices. In addition, it showed that child AD/HD symptoms interacted with maternal AD/HD symptoms to increase positive parenting.

2.1.3: Study 3

The aims of the third study were to examine: the association between child AD/HD symptoms and parenting for mothers and fathers separately; and between maternal AD/HD symptoms and parenting and paternal AD/HD symptoms and parenting. In addition, it explored mutual influences between child AD/HD symptoms and maternal (and paternal respectively) AD/HD symptoms in predicting parenting, Expressed Emotion and empathy.

The aim of Study 3 was to replicate and extend the findings from studies 1 and 2. Given the similarity in findings between parenting and AD/HD in studies 1 and 2, this study using a school aged sample measured parenting through parent report questionnaires. Measures to extend the focus of studies 1 and 2 included obtaining data about parenting and parental AD/HD from mothers and fathers. Previous research has found that fathers contribute to child development and adjustment in the same way as mothers (Phares & Compas, 1992). In order to increase objective reporting for child AD/HD symptoms, Study 3 measured both parent and teacher report on child AD/HD and comorbid problems.

Study 3 extended the findings of studies 1 and 2 by adding two further dimensions to explore the relationship between parent and child AD/HD. Research has highlighted that adult AD/HD typically coexists with aggression and antisocial personality disorder (Rhee & Waldman, 2002). Study 3 assessed parental antisocial characteristics to provide additional information about parent characteristics that potentially contribute to parenting. In addition, Study 3 aimed to explore further the attraction hypothesis. One possible mechanism through which the increase in positive parenting in the parent-child relationship pair with high symptoms of AD/HD can be explained is through empathy. Study 3 assessed parent empathy towards the child in order to explore the hypothesis that parents with AD/HD might have increased levels of empathy for the child with AD/HD as a result of having direct personal experience with the disorder.

In order to achieve these aims a number of new measures were introduced: the Aggression Questionnaire (AQ; Bryant & Smith, 2001; to measure anti-social characteristics in parents); and the Parental empathy questionnaire (an adapted version of the Interpersonal Reactivity Index; IRI; Davis 1983; to measure parent empathy towards their child with AD/HD). Teachers' SDQ (SDQ; Goodman, 1997) was added to measure teacher report on AD/HD symptoms, as well as comorbid conduct problems and emotional symptoms. Finally, the DuPaul Rating Scale (DuPaul, Anastopoulos, Power, Reid, Ikeda & McGoey, 1997) was included to measure child symptoms of inattention, hyperactivity and impulsivity.

The results of Study 3 replicated findings from studies 1 and 2 to show that child and maternal AD/HD symptoms were associated with negative parenting practices. No significant associations were, however, found between paternal AD/HD symptoms and parenting. In addition, it found that child AD/HD interacted with maternal AD/HD symptoms to decrease negative parenting. In contrast, child AD/HD symptoms interacted with paternal AD/HD symptoms to increase negative parenting. Furthermore, child AD/HD symptoms interacted with maternal AD/HD symptoms to decrease maternal personal distress and maternal emotional over-involvement with the child.

2.1.4: Study 4

The fourth empirical chapter aimed to investigate the attraction hypothesis further in relation to the moderating effect of high AD/HD symptoms in the parent-child relationship with increased positive parenting (Studies 1 and 2) and decreased

negative parenting (Study 3) by exploring a potential similar effect in depressive symptoms. In other words, it explored whether mothers with high levels of depressive symptoms show increased positive parenting for their child with high emotional symptoms. If it is possible to demonstrate support for the attraction hypothesis in depression, it can be argued that similarities in personality traits between the mother and the child leads to more favourable parenting outcomes in different aspects of child psychopathology.

Study 4 used data from maternal report on parenting and Negative Expressed Emotion measurements in studies 1 to 3 in order to explore this question. Study 4 predicted that child emotional symptoms and maternal depressive symptoms would be associated with negative parenting practices and high levels of Negative Expressed Emotion (Lovejoy, Graczyk, O' Hare & Neuman, 2000; Rey, 1995, Asarnow, Goldstein, Tompson & Guthrie, 1993). In addition, following the results of studies 1 to 3, it predicted that child emotional symptoms would interact with maternal depressive symptoms to decrease positive parenting and increase Negative Expressed Emotion. This prediction is based on the assumption that child emotional symptoms would add to the negative effects of maternal depressive symptoms on parenting. Finally, in relation to the attraction hypothesis and following the results of studies 1 to 3, it predicted that child emotional symptoms would interact with maternal depressive symptoms to increase positive parenting and decrease Negative Expressed Emotion.

Consistent with the findings from studies 1 to 3, the results of Study 4 showed that increased child emotional symptoms and maternal depressive symptoms were associated with negative parenting. In addition, it found that child emotional symptoms interacted with maternal depressive symptoms to decrease Negative Expressed Emotion. In contrast to the results of studies 1 to 3, however, there was no support for the attraction hypothesis for increased emotional and depressive symptoms in mother-child relationship pairs. Study 4 showed that mothers with high depressive symptoms reported the same level of Negative Expressed Emotion regardless of the severity of child emotional symptoms.

2.2: Summary of the findings

The thesis examined the association between child and parental AD/HD symptoms and parenting and mutual influences between child and parental AD/HD symptoms in predicting parenting. The findings across three studies were consistent with previous research (McKee, Harvey, Danforth, Ulaszek & Friedman, 2004; Stormshak et al., 2000; Harvey et al., 2003; Evans et al., 1994) to highlight an increase in negative parenting when either a child or their mother showed increased AD/HD symptoms. Study 4 showed a similar pattern of findings in relation to parenting with increased depression/emotional symptoms in mothers and their children. In addition, Studies 1 to 3 extended previous research to provide some evidence for the attraction hypothesis (Byrne et al., 1986) in parent and child AD/HD dyads. Specifically, they demonstrated that a similarity in AD/HD status between the mother and the child is associated with increased positive parenting. This finding was only found for parenting in mothers; Study 3 showed that a similarity in AD/HD status between the father and the child was associated with increased negative parenting. Study 4 highlighted that this phenomenon was not a feature of parenting in mothers and children with increased depressive/emotional symptoms. It argues, however, that a further exploration of the attraction hypothesis in other measures of psychopathology would inform clinical practice to allow the development of theoretical models of "goodness of fit" between the parent and child in predicting parenting.

Chapter Three: The Effects of Child and Maternal AD/HD Symptoms on Parenting: An Exploratory Study

3.1: Overview of Chapter 3

Chapter 3 presents the first study of the thesis. This was a pilot study that examined the effects of child and maternal AD/HD symptoms on parenting. Participants were ninety-five mothers who were recruited through primary schools. Mothers reported on their child and their own AD/HD symptomatology and they completed a questionnaire about parenting. Based on previous studies, it was predicted that child and maternal AD/HD would negatively affect parenting (Mash & Johnston, 1983; Evans et al., 1994). Two predictions were made for any possible mutual influences between child and maternal AD/HD symptoms on parenting. The first hypothesis was based on previous studies that highlight the negative effects of adult AD/HD on parenting (Harvey et al., 2003; Arnold et al., 1997; Evans et al., 1994), and it was predicted that maternal AD/HD would act as a "risk" factor for the child with AD/HD – a multiplicative effect. A second hypothesis was based on the social psychology literature about similarity between individuals (Byrne et al, 1986; Berscheid, 1985), and it was predicted that a similarity in AD/HD status between the child and the mother would have a positive effect on parenting. The results suggested that child AD/HD was positively associated with negative aspects of parenting and maternal AD/HD symptoms were negatively associated with positive aspects of parenting. Surprisingly, mothers with high AD/HD symptoms were more positive in their parenting for their child with high AD/HD symptoms. Implications of the findings and methodological issues are discussed and set the aims of Study 2.

3.2: Introduction to Study 1

The behaviour of parents towards their children with AD/HD is often characterised by high levels of coerciveness, negativity and inconsistent discipline (Campbell et al., 1991; DuPaul et al., 2001). Developmental, experimental and genetic studies suggest that these effects are part of a reciprocal cycle. Symptoms of impulsivity, hyperactivity and inattention may elicit a negative response from parents, which in turn may compound and exacerbate existing developmental risk and lead to the development of comorbid oppositional behaviour (Cunningham & Boyle, 2002; Woodward, Taylor & Dowdney, 1998; Anderson et al., 1994). However, not all

parents respond in this way and it is possible that a constructive response has the potential to disrupt risk pathways and improve prognosis (Taylor, 1999). Given the potential variability, more research is needed on the factors that moderate parental responses to children with AD/HD.

Given the exploratory nature of Study 1, speculations with some degree of confidence can be made only about the possible negative effects of child and maternal AD/HD symptoms on parenting. It is not clear what direction, if any, can be taken between child and maternal AD/HD symptoms on influencing parenting.

The analysis reported in the whole thesis conceptualises AD/HD as a quantitative trait rather than as a discrete disorder. Current genetic and neuropsychological research suggests that such a conceptualisation mirrors the underlying structure of the condition (Levy, Hay, McStephen & Wood, 1997). This approach seems especially appropriate in an exploratory study with age groups (pre-schoolers and adults) where current evidence of validity of diagnostic thresholds is limited (Byrne, DeWolfe & Bawden, 1998; Faraone, 2000; Faraone, Biederman, Feighner & Monuteaux, 2000).

In summary, the aims of Study 1 are:

(1) To examine the association between child AD/HD symptoms and parenting.

(2) To examine the association between maternal AD/HD symptoms and parenting.

(3) To examine if child and maternal AD/HD symptoms interact with each other in predicting parenting.

(4) To examine the extent to which links between child AD/HD symptoms and maternal AD/HD symptoms and parenting are moderated by child emotional symptoms and conduct problems and maternal depressive characteristics.

The predictions of Study 1 are described in detail in the next section:

3.3: Predictions

A number of predictions are made for child AD/HD symptoms, maternal AD/HD symptoms, and the interaction Child X Maternal AD/HD symptoms in predicting parenting. It is predicted that:

3.3.1: Child AD/HD symptoms

(1) Child AD/HD symptoms would be associated with less positive parenting and more negative parenting. These predictions are based on previous studies, which document an association between child AD/HD and negative parenting (Befera & Barkley, 1985; Mash & Johnston, 1982).

3.3.2: Maternal AD/HD symptoms

(2) Maternal AD/HD symptoms would be associated with less positive parenting and more negative parenting. These predictions are based on previous studies that document an association between maternal AD/HD and parenting (Harvey et al., 2003; Evans et al., 1994).

3.3.3: Child and maternal AD/HD symptoms

(3) Child and maternal AD/HD symptoms would interact with each other in predicting parenting. The interaction could go in either direction:
(a) Maternal AD/HD symptoms would decrease positive parenting (and increase negative parenting) for the child with high AD/HD symptoms (based on the cumulative negative effects of AD/HD) or
(b) Maternal AD/HD symptoms would increase positive parenting (and decrease negative parenting) for the child with high AD/HD symptoms (based on the attraction hypothesis; Byrne et al., 1986).

3.4: Method

3.4.1: Participants

The sample was a convenience one and it consisted of ninety-five mothers of school-aged children. There were 31 boys and 64 girls with a mean age M = 7.61 (SD = 2.58). They were recruited through two primary schools in Hampshire, England. The schools were of a mixed ethnic composition and social class. When parents had more than one child they were asked to complete questionnaires for the eldest.

75.5 % of the mothers were married, 9.6 % were divorced, 1.1 % were widows, 6.4 % were cohabitating and 7.4 % were single.

3.4.2: Measures

3.4.2.1: Maternal AD/HD symptoms

The level of maternal AD/HD symptomatology was measured using the Adult AD/HD Rating Scale (AARS; Barkley & Murphy, 1998). This is a self-report scale, which contains 18 items based on the DSM-IV symptom list spanning inattentiveness (e.g., "easily distracted"), impulsiveness (e.g., "interrupt or intrude on others") and hyperactivity (e.g., "feel restless"). Adults rated their own behaviour over the past 6 months on a 4-point scale, ranging from (0=Rarely) to (3=Very Often). The scale as a whole and the inattention and impulsive/overactive sub-scales within it have been found to have good internal consistency and to predict concurrent ratings provided by spouses, parents, and cohabiting partners about the subjects themselves (Murphy & Barkley,1996). A score of nine symptoms or more experienced as "often" or "very often" have been shown to identify adults with a clinical degree of difficulty (Barkley & Murphy, 1998). There is a copy of this questionnaire in Appendix 1.

3.4.2.2: Child AD/HD symptoms

Child hyperactivity was measured with the hyperactivity scale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ is a brief behavioural screening questionnaire that can be completed by parents or teachers of children aged 4 to 16. There is also a self-report version for completion by 11 to 16 years old. It is a well-validated instrument and has been shown to be as effective as the Child Behaviour Checklist (CBCL; Achenbach, 1991) in identifying children with clinically significant levels of behavioural disturbance (Goodman, 1997). A test-retest reliability (α= .85) has been reported for the total SDQ score. The SDQ hyperactivity scale contains 5 items (e.g., "restless, overactive, cannot stay still for long") with a 3-point response scale, ranging from (0=Not True) to (2=Certainly True). A range from 7 to 10 symptoms indicates abnormal levels of AD/HD. There is a copy of this questionnaire in Appendix 2.

3.4.2.3: Maternal depressive characteristics

The level of maternal depressive characteristics was measured using the General Health Questionnaire-12 item version (GHQ; Goldberg, 1978, 1982). The GHQ is a self-report measure that is widely used in psychological research. It has been extensively used as a short screening instrument to identify depression. Several versions of the GHQ have been used, including a 60, 30, 28 and 12 item versions. The GHQ12 is the most commonly used version of the GHQ because of its brevity and availability of normative data (Kalliath, O' Driscoll & Brough, 2004). It contains 12 items (e.g., "been feeling unhappy and depressed"), each requiring an agree or disagree response. The GHQ12 has high internal consistency (Winefield, Goldney, Winefield & Tiggemann, 1989) and convergent and discriminant validity. Scores from all items are combined to provide an overall rating. A cut-off of 3 symptoms indicates clinical levels of depressive characteristics. There is a copy of this questionnaire in Appendix 3.

3.4.2.4: Child emotional symptoms

Child emotional symptoms were measured with the emotional scale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The scale consists of five items (e.g., "Many worries, often seems worried" or "Often unhappy, downhearted or tearful") with a 3-point response scale, ranging from (0=Not True) to (2=Certainly True). Scores from all the five items are combined to provide an overall rating of emotional symptoms. A range from 5 to 10 symptoms indicates abnormal levels of emotional symptoms. There is a copy of this questionnaire in Appendix 2.

3.4.2.5: Child conduct problems

Child conduct problems were measured with the conduct scale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The scale consists of five items (e.g., "Often fights with other children or bullies them" or "Often has temper tantrums or hot tempers") with a 3-point response scale, ranging from (0=Not True) to (2=Certainly True). Scores from all the five items are combined to provide an overall rating of conduct problems. A range from 4 to 10 problems indicates abnormal levels of conduct problems. There is a copy of this questionnaire in Appendix 2.

3.4.2.6: Parenting

Parenting was measured with the Alabama Parenting Questionnaire (APQ; Shelton, Frick & Wootton, 1996). The APQ is a 42-item measure of parenting practices and uses a 5-point scale, ranging from (1=Never) to (5=Always). It has 6 scales:

Involvement (e.g., "You ask your child what his/her plans are for the coming day"), positive parenting (e.g., "You compliment your child when he/she does something well"), poor monitoring/supervision (e.g., "Your child is out with friends you do not know"), inconsistent discipline (e.g., "The punishment you give your child depends on your mood"), physical punishment (e.g., "You slap your child when he/she has done something wrong") and other discipline practises scale (e.g., "You ignore your child when he/she is misbehaving"). The other discipline practises scale was excluded from the analysis because of its low internal consistency (α= .46). The APQ has been found to have satisfactory reliability (Shelton et al., 1996). There is a copy of this questionnaire in Appendix 4.

3.4.3: Procedure

Ethical approval to conduct the study was received from the ethics committee, the School of Psychology, University of Southampton. Head teachers of primary schools were contacted over phone and were provided with information about the aim of the study. After receiving teacher's consent, parents were administered with a pack of questionnaires. Each pack consisted of an information letter, a consent-to-participate form, the questionnaires, and a free-post envelope. The confidentiality of the information supplied by the participants was emphasised on the information letter. There is a copy of the information letter in Appendix 5 and a copy of the consent form in Appendix 6.

3.5: Overview of the Analytical Strategy

The results are presented in the following sections. First, descriptive statistics, scores of abnormal levels, and correlations are presented for all adjustment problems. Second, factor analysis was conducted for measures of parenting to reduce the numbers of variables for subsequent analysis. Third, multiple regressions were conducted in order to examine the independent contribution of child and maternal AD/HD symptoms and their interaction in predicting parenting. The regressions were conducted again after controlling for child emotional symptoms and conduct problems and maternal depressive characteristics. Also, hierarchical regressions were conducted to control for the effects of negative parenting in the analysis of positive parenting and vice versa. Despite a high correlation between child AD/HD symptoms and conduct problems, the items were not combined as studies show that there are differences between AD/HD and conduct problems. For example, children with conduct disorder seem to live under more psychosocial adversities (Dadds,

Sanders, Morrison, & Rebgatz, 1992; Rutter, 1985) whereas AD/HD seems to be caused by developmental difficulties and genetic effects (Rappoport & Castellanos, 1996; Stevenson, 1992). The data had a J-shape distribution, so although not fully normal, was deemed appropriate for parametric analysis.

4.6: Results

3.6.1: Scores, proportion of participants meeting cut-off for adjustment problems and correlation analysis

Table 3.1 displays levels of child and maternal symptoms within the sample broken down by child gender. Levels of problems were as expected in a normal sample except for AD/HD, where three times as many boys met cut-offs. Boys had more AD/HD symptoms than girls. Levels of maternal depressive characteristics (score presented is per item) were high but in line with other studies.

Table 3.1: Scores and Proportion of Mothers and Children Meeting Cut-offs on Measures of Child and Maternal Problems Broken Down as a Function of Child Gender

	Boys (N=31)	**Girls (N=64)**	**t**
Child AD/HD symptoms			
Mean	4.26 (2.99)	2.98 (2.57)	
Range	0-10	0-10	2.15*
% abnormal (7-10 SDQ)	29.0	9.4	
Child conduct problems			
Mean	1.58 (1.41)	1.59 (1.89)	
Range	0-5	0-8	-0.03
% abnormal (4-10 SDQ)	12.9	10.9	
Child emotional symptoms			
Mean	1.52 (2.14)	2.44 (2.54)	
Range	0-8	0-10	-1.74
% abnormal (5-10 SDQ)	12.9	15.6	
Maternal AD/HD symptoms			
Mean	8.55 (5.98)	9.76 (7.16)	
Range	0-24	0-40	-0.81
% abnormal (>9 AARS)	0.0	6.25	
Maternal depressive characteristics			
Mean	.13 (.27)	.12 (.20)	
Range	0-.92	0-.75	0.27
% abnormal (>3 GHQ12)	16.1	18.8	

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

Note: AD/HD=Attention Deficit Hyperactivity Disorder; SDQ; Strengths and Difficulties Questionnaire; AARS=Adult AD/HD Rating Scale; GHQ=General Health Questionnaire (score per item): Figures in parentheses represent standard deviations

Table 3.2 displays the correlation matrix among measures of child and maternal psychopathology and components of parenting. Correlations between adjustment problems were in the expected direction. Child AD/HD was positively correlated with maternal AD/HD. Maternal AD/HD symptoms were positively associated with maternal depressive characteristics. Maternal AD/HD symptoms were positively correlated with child emotional symptoms and child conduct problems. Child AD/HD symptoms were positively associated with conduct problems and emotional symptoms. Child conduct problems were positively associated with emotional symptoms.

Maternal and child problems were correlated with components of parenting. Maternal AD/HD symptoms were positively correlated with inconsistent discipline. Maternal depressive characteristics were negatively correlated with involvement. As might be expected, child AD/HD symptoms were positively associated with inconsistent discipline and physical punishment. Child conduct problems were negatively associated with involvement and were positively associated with poor monitoring, inconsistent discipline and physical punishment. Child emotional symptoms were positively correlated with poor monitoring and physical punishment.

Correlations between elements of the Alabama Parenting Questionnaire were small and/or non-significant. Positive parenting was positively correlated with involvement. Poor monitoring was positively correlated with inconsistent discipline and physical punishment but other correlations were non-significant.

Table 3.2: Correlations Among Components of Parenting and Child and Maternal Psychopathology

	1	2	3	4	5	6	7	8	9	10
1. Child AD/HD symptoms										
2. Child emotional symptoms	.27**									
3. Child conduct problems	.55**	.51**								
4. Maternal AD/HD symptoms	.33**	.42**	.37**							
5. Maternal depressive	.10	.19	.13	.34**						
6. Positive parenting	.05	-.03	-.01	-.07	-.14					
7. Involvement	-.20	-.18	-.27**	-.16	-.22*	.47**				
8. Poor monitoring	.11	.27**	.30**	.13	-.05	.07	-.13			
9. Inconsistent discipline	.25*	.11	.35**	.22*	-.01	-.03	-.13	.27**		
10. Physical punishment	.32**	.31**	.49**	.19	-.01	.09	-.05	.23*	.20	

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

3.6.2: Factor analysis for measures of parenting

To reduce the number of parenting scales, principal components analysis with components rotated to a varimax solution with orthogonal factors were used. The eigenvalues from unrotated factor analysis yields an interpretable plot suggesting two factors should be extracted from the item-intercorrelation matrix. Poor monitoring, physical punishment and inconsistent discipline loaded on the first factor (Negative Parenting - NP). This factor accounted for 31 percent of the total variance. Positive parenting and involvement loaded on the second factor (Positive Involved Parenting - PIP). This factor accounted for the 29 percent of the total variance. The two factors together accounted for 60 percent of the total variance. The factor loadings are presented in Table 3.3.

Table 3.3: Factor Matrix for Components of Parenting

	NP	PIP
1. Involvement	-.168	**.846**
2. Positive parenting	.133	**.860**
3. Poor monitoring	**.737**	-.030
4. Inconsistent discipline	**.683**	-.137
5. Physical punishment	**.659**	.123

Table 3.4 displays correlations between the two parenting factors and child and maternal measures of psychopathology. Child AD/HD symptoms, emotional symptoms and conduct problems and maternal AD/HD symptoms were all positively associated with more NP. No other association between parenting and parent or child symptoms reached significance.

Table 3.4: Correlations Between the Parenting Factors and Child and Maternal Psychopathology

	Child AD/HD	Child Emotional	Child Conduct	Maternal AD/HD	Maternal Depressive
1. PIP	-.07	-.09	-.13	-.14	-.20
2. NP	.34**	.33**	.55**	.26*	-.04

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

In order to examine the independent contribution of child and maternal AD/HD symptoms as well as their interaction, two separate multiple regressions were conducted entering child and maternal AD/HD symptoms and a term representing the interaction between the two. The interaction term was calculated by multiplying together the standardized values for maternal and child AD/HD symptoms. Scores for PIP and NP were the outcome variables.

3.6.3: Effects of child and maternal AD/HD symptoms on PIP and NP

For PIP, the overall model was significant $F(3, 88)= 4.75$, $p < .01$, with the combination of the predictors accounting for a significant amount of variance (Adjusted $R^2= .11$). There were a significant negative association between maternal AD/HD symptoms ($\beta= -.27$; $p < .01$) and PIP and a significant positive association between the interaction term ($\beta = .38$; $p < .01$) and PIP. After controlling for child emotional symptoms and conduct problems and maternal depressive characteristics, the interaction remained significant and the β coefficient increased slightly ($\beta= .41$, $p < .01$). No others effects remained significant.

To control for the effects of Negative Parenting, hierarchical regressions were used. Negative Parenting was entered in the first step, child and maternal AD/HD symptoms in the second step and the interaction between child and maternal AD/HD symptoms in the third step. The results revealed that the interaction remained significant ($\beta= 38$, $p < .01$).

The effects are presented graphically in Figure 3.1. In order to facilitate this, participants were divided on the basis of low, medium and high maternal AD/HD symptoms (Low group=below the 33 percentile; high group= above the 66 percentile and medium group= between the 33 and 66 percentiles). The scores relating child AD/HD symptoms to PIP were then plotted for each of these groups and a line fitted through the relevant points.

One could see that the slopes of the three lines differ markedly. For the low and medium maternal AD/HD symptoms groups, there was a negative slope and a negative association between PIP and child AD/HD symptoms, while for the high group the situation was reversed. In the high maternal AD/HD symptoms group, parenting became more positive as levels of child AD/HD symptoms increased. For the low and medium group, Positive Involved Parenting decreased as levels of child AD/HD symptoms increased.

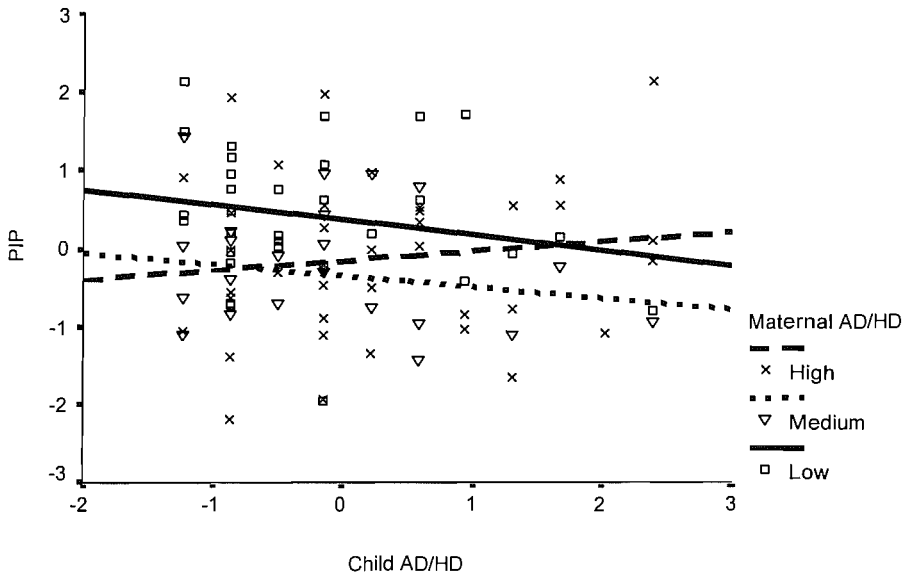


Fig 3.1: Association between child and maternal AD/HD on PIP

Note: PIP = Positive Involved Parenting

For NP, the overall model was significant $F(3, 88)= 5.27$, $p < .01$ and it accounted for a significant amount of variance (Adjusted $R^2= .12$). This effect was carried by a significant positive association between child AD/HD symptoms ($\beta= .27$, $p < .01$) and NP (Figure 3.2). With more Negative Parenting reported as child AD/HD symptoms increased. This effect was non-significant after controlling for other factors ($\beta= .07$, ns). To control for the effects of Positive Involved Parenting hierarchical regressions were used. Positive Involved Parenting was entered in the first step, child and maternal AD/HD symptoms in the second step and the interaction between child and maternal AD/HD symptoms in the third step. The results revealed that the interaction was not significant ($\beta= .14$, ns).Figure 3.2 shows that for all the three maternal AD/HD symptoms groups, there was a positive slope and a positive association between child AD/HD symptoms and Negative Parenting.

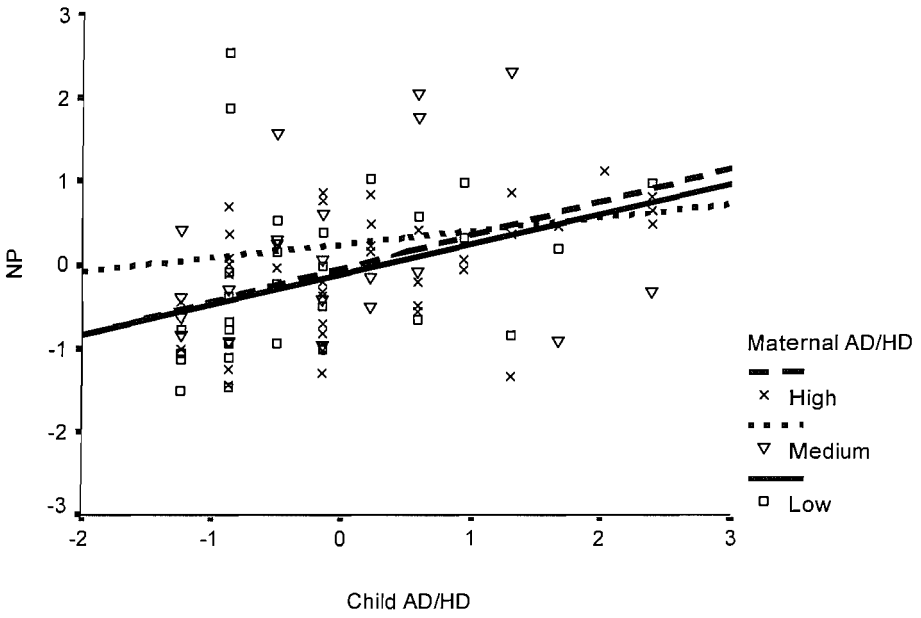


Fig 3.2: Association between child and maternal AD/HD on NP

Note: NP = Negative Parenting

3.7: Discussion

The goal of the present study was to examine the effects of child and maternal AD/HD symptoms on parenting. Particularly important was to examine whether maternal AD/HD symptoms acted in a cumulative way to exacerbate the negative effects of child AD/HD symptoms on parenting or whether it acted as a "protective factor" increasing positive parenting. The results of Study 1 gave some support to the predictions. Child and maternal AD/HD symptoms were associated with negative aspects of parenting. Surprisingly, however, maternal AD/HD symptoms were found to act as a "protective" factor increasing the positive parenting for the child with high AD/HD symptoms.

3.7.1: Child effects

Child AD/HD symptoms were associated with increased NP (Negative Parenting - Inconsistent discipline, poor monitoring, and physical punishment). This finding is consistent with a number of previous studies. For example, Woodward et al., (1998) examined the parenting and family life of childhood hyperactivity in a community sample of school children. Twenty-eight boys with pervasive hyperactivity were compared with 30 control children. The results demonstrated that hyperactivity was associated with aggressive disciplinary parenting practices and poor parental coping, after controlling for conduct problems and parental mental health.

McKee et al., (2004) examined parental discipline, coping styles, and child behaviour before and after participation in a parent-training programme for parents of children with AD/HD and ODD. They found that observed child misbehaviour before the parent-training programme was associated with overactivity and maternal lax discipline based on maternal reports and more observed coercive parenting. No significant associations were found following the parent training programme after controlling for pre-treatment variables.

Stormshak et al., (2000) in a sample of 631 school age children with disruptive behaviour found that hyperactivity was associated with negative parenting. Parents of hyperactive children used high levels of punitive discipline and spanking.

Overall, the studies suggest that AD/HD in childhood is associated with negative parenting practices. It is likely that such punitive and harsh disciplinary practices and parenting may contribute to the exacerbation of the behavioural difficulties

experienced by the hyperactive child. However, it is also likely that the characteristics of the hyperactive child shape parenting behaviour, and that from a transactional perspective it arises from the mutual and continual interplay of parent and child (Shaw & Bell, 1993).

The cross-sectional nature of the design of Study 1 did not allow testing of any cause-effect relationships. It is likely that children with AD/HD may undermine parental skills to manage child difficult behaviour effectively. In support of this hypothesis, Barkley (1989) provided evidence that both mothers and fathers appear to be more negative and controlling when the child is on placebo whereas they are more positive and they provide more support when the child is on medication (Barkley, 1989). Parents of offspring with AD/HD may adjust the way they interact with their child as a function of the child's behaviour. Some evidence suggests that that the mental health of family members tends to improve with time, and that the change is most pronounced when the child with AD/HD moves out of the family home (Hechtman, 1996).

In a similar way, children without the disorder may appear less demanding and parents may find it easy to employ proactive and flexible strategies in order to diminish child misbehaviour. Also, it is likely that their parents have better social skills and the way they interact is more rewarding (Mize & Pettit, 1997). Thus, it is most likely that there are mutual influences between the parent and the child (Shaw & Bell, 1993). Also, there are other variables not measured in the present study that are considered to play an important role, such as shared genes and factors associated with the broader family functioning such as marital discord. It is the most likely then that child characteristics, parent characteristics and third variables interact with each other in determining parenting and child adjustment.

3.7.2: Maternal effects

Maternal AD/HD symptoms were associated with reduced PIP (Positive Involved Parenting - Positive parenting and involvement). The negative association between maternal AD/HD symptoms and PIP was in line with the existing studies described in Chapter 1 (Section 1.13). Arnold et al., (1997) demonstrated that AD/HD leads to a parenting style characterised by inconsistency, reactivity and a lack of self-reflection. Evans et al., (1994) found that AD/HD prevented parents from effective monitoring and consistent implementation of constructive management techniques. Harvey et al., (2003) found that parents' AD/HD symptoms were associated with lax discipline.

The mechanism through which AD/HD affects parenting is still unknown. Kendziora and O' Leary (1993) suggested that AD/HD symptoms, especially inattention and impulsivity might make parents vulnerable to the use of harsh and lax parenting and parents may also adopt a permissive and inconsistent style of parenting. However, these proposed pathways warrant empirical investigation in future studies.

3.7.3: Child and maternal effects

For neither Positive Involved Parenting nor Negative Parenting was there evidence that maternal AD/HD symptoms exacerbated the risk of negative parenting associated with child AD/HD symptoms. Surprisingly, there was some evidence that high levels of maternal AD/HD symptoms increased the level of PIP for children with high levels of AD/HD symptoms. This raises the interesting possibility that, given the potential significance of positive affect in reducing developmental risk for AD/HD children, certain aspects of the parenting style of mothers with AD/HD symptoms may, for whatever reason, be 'protective' for their hyperactive children. The factor that accounts for this protective effect is not known. The attraction hypothesis was described in the introduction arguing that the similarity between the AD/HD status between parent and offspring would result in more favourable parenting outcomes. If this was the case, then the effects could be due to the fact that the degree of similarity on any trait determines levels of positive parenting. The findings do not seem to support the suggestion. If this were the case, it would be expected that the dyad without the disorder would experience positive parenting as well. However, Figure 3.1 showed that for the group with low and medium maternal AD/HD symptoms, Positive Involved Parenting was decreasing as child AD/HD symptoms were increasing.

The significant interaction between Child X Maternal AD/HD symptoms on Positive Involved Parenting is in line with Biederman, Faraone and Monuteaux's (2002) study that examined the effect of exposure to parents' AD/HD on clinical features and dysfunction on the child. The results demonstrated that having a parent with active AD/HD symptoms does not add additional risk for dysfunction to the child with AD/HD beyond that associated with the disorder, but has a very negative effect on the child without AD/HD. Persistent parental AD/HD was associated with improvement for the offspring with AD/HD and worsening for the offspring without AD/HD in measures such as, total school score, activity score and reading. In parents with remitted AD/HD, it was found an increase in the rate of attendance of special classes in the child without AD/HD and a decrease in the child with AD/HD.

This significant interaction found in the present study appeared quite robust, as it remained significant above and beyond the contribution of child emotional symptoms and conduct problems and maternal depressive characteristics. In other words, mothers with AD/HD symptoms were still positive in their parenting for their child with high AD/HD symptoms even when facing other child and personal adjustment problems. Previous research had suggested complicated relationships between child and maternal adjustment problems and parenting. For example, Johnston, Murray, Hinshaw, Pelham and Hoza (2002) suggested that child conduct problems, maternal depressive symptoms and maternal responsiveness were all associated in a mutual way. They suggested that mothers who suffered from depressive symptoms would face difficulties in monitoring and responding appropriately to their child behaviour. In turn, these mothers would experience greater difficulty in being responsive to a child with oppositional and difficult to manage behaviour, and that over time, the presence of unresponsive parenting, maternal depressive symptomatology, and child conduct problems would contribute to the maintenance of each other. However, in the present study the Positive Involved Parenting remained even when other adjustment problems were present.

With regard to these findings, a number of issues should be addressed in subsequent studies. First of all, the finding is a novel one and it needs replication in future studies using different methodologies and clinical samples. Second, it is not yet known if the Positive Involved Parenting adopted by mothers with AD/HD symptoms for their AD/HD children is an appropriate style of parenting. Sonuga-Barke et al., (2001) suggested that clear and consistent parenting is important for children with AD/HD. Maybe mothers with high AD/HD symptoms are prone to lax discipline, poor limit setting, and they do not assign to their children age-appropriate responsibilities. Such parenting qualities, however, set the foundation for self-regulation and maybe Positive Involved Parenting has negative consequences in the long run. Third, the factors that account for this association are not known. If the results are replicated, research should examine the mechanisms that accounted for this association.

3.7.4: Methodological considerations

Conclusions based on the results of Study 1 are limited by several factors. First of all, all reports were self-reports and this might have resulted in inflated correlations between the variables. Future studies need reports from a third party.

Also, mothers reported on their own AD/HD symptoms and there is some concern regarding the accuracy of self-reports. Murphy and Schachar (2000) examined if adults can provide a true rating of their own childhood and current AD/HD symptomatology. In one study, adult participants completed a questionnaire assessing their AD/HD symptoms in childhood. Also, a parent of each participant completed a questionnaire rating the participants AD/HD symptomatology during childhood. In another study, both participants and their partners completed questionnaires about participants' current AD/HD symptomatology. They found good correlations between the two reporters in both studies and the findings suggested that they could rate truly their childhood and current AD/HD symptomatology.

Another methodological issue relates to social desirability in relation to maternal reports on parenting. For instance, it is likely that mothers might respond in a socially desirable manner when they reported on their parenting. However, in a very recent study, Johnston, Scoular and Ohan (2004) examined the association between the tendency of the participants to respond in a socially desirable way and mothers' reports on their parenting in a sample of mothers with school age boys with AD/HD. The results demonstrated that maternal reports on one of the parenting measures were related to scores on an impression management scale, but the correlations between parenting reports and maternal and child symptomatology were not altered with impression management scores controlled. The results suggested that reports of parenting in mothers of children with AD/HD are not unduly affected by social desirability, and are associated with child and maternal functioning. However, it would be a better option if future studies would use independent reports of parenting.

3.8: Summary and Aims of Study 2

Despite methodological limitations, these results indicate that symptoms of inattention, impulsivity and hyperactivity in the child and the mother are associated with negative parenting. However, maternal AD/HD symptoms did not add additional risk of Negative Parenting associated with child AD/HD symptoms. On the contrary, there was some evidence that high levels of maternal AD/HD symptoms increased the level of Positive Involved Parenting for children with high levels of AD/HD symptoms. However, these results are tentative and needs replication by addressing key design limitations.

Study 2 aims to replicate and extend the findings of Study 1. It addresses design limitations of Study 1 as:

(1) It includes a larger number of mother-child dyads including a higher proportion of children with high AD/HD symptoms.

(2) It replaces maternal ratings of parenting by a measure of Expressed Emotion (EE) and an objective direct-observational measure of interaction during mother-child joint play.

There are a number of reasons why each of these variables is included in Study 2. Theoretical and empirical evidence are discussed in the next sections:

3.8.1: Functions of joint play

Joint play is chosen as previous research provides evidence that joint play is an important aspect of parenting with important consequences for the child development and adjustment (Gardner, 1994). It is considered as an important part of proactive parenting because it requires that the parent structures the child time and that the parent is involved with the child after adjusting parental behaviour to the child level (Gardner, 1994). Furthermore, Gardner (1987; 1994) suggested that joint play helps the child to form harmonious relationships and to avoid conflict because the child experiences interactions, which are warm, cooperative and rewarding. Joint play may also help the child to engage the adult's attention in appropriate ways, and may help the child learn attention skills (Gardner, 1994). Also, because joint play keeps the child busy and out of trouble it may be helpful to the prevention of problematic child behaviour. Recently, joint play has become a substantial part of therapeutic interventions and parent-training programmes. For example, Sanders, Markie-Dadds, Tully and Bor (2000) taught teaching joint play skills for an intervention programme for children with conduct problems.

3.8.2: Importance of Expressed Emotion (EE)

Additionally, Study 2 includes EE, as it has been shown to be important in developmental psychopathology, because of a number of important characteristics. First, EE put emphasis on individual-specific expressed emotions regarding (a) the person who expresses the particular emotion and (b) the child who receives it. Second, it does not focus on closed-ended questions as other measures do but it takes into account the manner in which the parent talks about the child. Third, the

rating of EE considers what the person actually says about the child but also it considers vocal elements such as the tone of voice. Fourth, EE puts emphasis on emotions about the child as an individual rather than specific emotions associated with the AD/HD symptomatology.

3.8.3: AD/HD in preschool age

Study 2 recruits pre-school children. There are a number of sound reasons for conducting further research with preschool samples. First, there is some evidence that negativity and difficulties in mother-child interactions of children with AD/HD are at their worst during preschool years (Mash & Johnston, 1982). Second, children at the preschool age depend totally on their parents for guidance and support and negative parenting can have detrimental consequences on them (Campbell et al., 1996). Third, there is evidence that parent training programmes in child management techniques are very beneficial and helpful for children at preschool age (Sonuga-Barke et al., 2001). Consequently, in terms of both development and intervention programmes, it is important to examine associations between AD/HD symptoms and parenting during the preschool years.

It is also worth noting that there are some methodological limitations in the study of AD/HD in preschool children. Other studies assessing children with AD/HD during the pre-school years suffer from a number of limitations (1) they use small samples and/or incomplete diagnostic criteria (Byrne et al., 1998) and (2) they use data collected in only one setting and examine one or only a few areas of functioning (Alessandri, 1992; Mariani & Barkley, 1997). As Study 1 demonstrated, there are problems with the parenting of school age children with AD/HD and it is important to determine whether similar difficulties are associated with AD/HD during the pre-school years.

An improved understanding of AD/HD in preschool children can help clinicians identify and intervene early in development of the disorder, and thus, preventing and minimizing the deleterious impact of the disorder and its associated experiences of failure and demoralisation.

3.8.4: AD/HD and comorbidity

Study 2 examines the contribution of child and maternal emotional symptoms/depressive characteristics respectively (as in Study 1) as well as social problems in the child. Child social problems are included because the literature on

AD/HD has consistently documented significant social deficits that are associated with the condition (Biederman et al., 1993; Whalen & Henker, 1992). Dupaul et al., (2001) found that preschool children with AD/HD displayed significantly higher frequency of negative social behaviour than were controls, especially during unstructured and, free play activities. In another study, Guevremont (1990) found that preschool children in comparison to controls were more aggressive, destructive, and dominating, and they engaged in more rough and tumble or solitary play, and they exhibited less prosocial behaviour. Some evidence suggests that social difficulties are often resistant to psychosocial and pharmacological treatment (Pelham & Lang, 1982) and they are expected to continue.

3.8.5: Observational data

Finally, the study uses observational data of mother-child interaction instead of maternal reports of parenting because observational data are more likely to provide access to the real behaviours of interest. One advantage of the observational data is that the behaviours of interest can be defined by the researcher and not by the parent. For example, the danger when mothers complete a questionnaire is that they might define behaviours in a way that is specific to them only. Furthermore, the responses they give are likely to be influenced by systematic personal biases associated with factors such as the parent's expectations, the attributions they make about the child difficult behaviour, or their depressive characteristics (Eddy et al., 1998; Fergusson, Lynskey & Horwood, 1993).

Study 2 had four main aims:

(1) To examine the relationship between maternal AD/HD symptoms and two dimensions of parental response to children a) EE and b) maternal behaviour during interaction.

(2) To examine the relationship between child AD/HD symptoms and other aspects of behaviour.

(3) To look at how maternal and child AD/HD symptoms interact in relation to parental aspects of parenting. In particular, to test the hypothesis that mothers scoring high in AD/HD symptoms would be more positive in their parenting about the AD/HD children than low AD/HD mothers.

(4) To examine the extent to which the association between maternal AD/HD symptoms, child AD/HD symptoms and aspects of parenting is moderated by child and maternal emotional symptoms/depressive characteristics, respectively and child social problems.

Chapter Four: Do Maternal AD/HD Symptoms Exacerbate the Negative Effect of Child AD/HD Symptoms on Parenting?

4.1: Overview of Chapter 4

Chapter 4 presents the second study, which aimed to replicate and extend the findings of Study 1, by using more objective measures of parenting practices and a large sample. The study was based on data from a group of children with a pre-school variant of AD/HD who took part in two previously reported trials of parent training (Sonuga-Barke et al., 2001; Sonuga-Barke, Thompson, Daley & Lever-Bradbury, 2004). This sample was supplemented by a group of children without AD/HD drawn from local pre-school facilities. The results provided converging evidence that child AD/HD symptoms were associated with negative aspects of parenting (Negative Comments). Similarly, maternal AD/HD symptoms were associated with negative aspects of parenting (Negative Expressed Emotion and Negative Comments). Furthermore, the results showed that child AD/HD symptoms interacted with maternal AD/HD symptoms in increasing positive aspects of parenting (Affectionate and Constructive Parenting). The study replicates the findings of Study 1 and provides a sound reason for a further examination of the phenomenon. At the end of the chapter, the aims of Study 3 are set and ways of addressing the limitations of Studies 1 and 2 are discussed.

4.2: Introduction to Study 2

Research has suggested that parenting contributes to the expression of AD/HD symptoms and/or the development of comorbid problems such as ODD and conduct problems (Barkley, 1990). Given that children with AD/HD quite often have parents with AD/HD symptoms (Smalley et al., 2000; Biederman et al., 1992), understanding the relation between parental AD/HD symptomatology and parenting behaviour is particularly important for the child with AD/HD.

Study 1 examined the effects of child and maternal AD/HD symptoms on parenting and revealed that maternal AD/HD symptoms acted as a "protective" factor for the child with AD/HD symptoms being associated with increased positive parenting. However, the study bears a number of limitations. Specifically, it was based on a small sample of 95 mothers and it used questionnaires that even though they had the advantages of standardisation and economy they may suffer from subjectivity, and

increased vulnerability to bias. Similarly, the handful of previous studies that examined the effects of parental AD/HD on parenting also suffers from methodological drawbacks. The study by Evans et al., (1994) was a case study, and although important, it is difficult to generalise such findings in larger populations. Arnold et al., (1997) examined the effects of fathers' AD/HD on parenting but it did not examine the effects of maternal AD/HD. Harvey et al., (2003) addressed some of these limitations, as they included both mothers and fathers and used observational data. However, the sample consisted of only 46 mothers and 26 fathers and might not have enough statistical power to detect additional differences.

The goal of Study 2 was to examine the effects and possible interactions of maternal and child AD/HD symptoms on parenting by using a large sample of 192 mother-child dyads and observational data that are relatively objective and may provide unbiased assessment of the interaction style of the mother-child dyad.

Overall, Study 2 uses observational data of mother-child play interactions and EE and examines the effects of child and maternal AD/HD symptoms and their possible interaction in predicting parenting. The predictions for the main effects and any possible interaction are described in the next sections:

4.3: Predictions

Based on the findings from Study 1 a number of predictions were made:

4.3.1: Child AD/HD symptoms

(1) Child AD/HD symptoms would be associated with increased negative parenting and EE and decreased positive parenting. These predictions are based on the results from Study 1 and previous studies that demonstrated significant associations between child AD/HD and negative parenting (Befera & Barkley, 1985; Mash & Johnston, 1982) as well as child's AD/HD and EE (Daley, 1999).

4.3.2: Maternal AD/HD symptoms

(2) Maternal AD/HD symptoms would be associated with increased negative parenting and EE and decreased positive parenting. These predictions are based on the studies by Evans et al., (1994) and Harvey et al., (2003) which demonstrated an association between maternal AD/HD and negative parenting. Until now, there are

not any studies that have examined the relation between maternal AD/HD and EE. The investigation of EE is exploratory in nature.

4.3.3: Maternal and child AD/HD symptoms

(3) Maternal AD/HD symptoms and child AD/HD symptoms would interact with each other to increase positive parenting. This prediction is based on the results from Study 1. For EE the investigation is exploratory in nature. If an interaction is found, it can get either direction:

(a) Maternal and child AD/HD symptoms could interact with each other in increasing EE or

(b) Maternal and child AD/HD symptoms could interact with each other in decreasing EE.

4.4: Method

4.4.1: Participants

Data from two groups including a total of 192 mother-child dyads (112 boys and 80 girls) was included in the analysis. The first group consisted of 157 children who met criteria for a pre-school equivalent of AD/HD as rated by their mothers and who entered one of two trials of parent training for mothers of pre-schoolers with AD/HD (Sonuga-Barke et al., 2001; Sonuga-Barke et al., 2004). There was a three stage screening process before entry into this trial. At the first stage, children were selected on the basis of scores of 20 or more on the Werry-Weiss-Peters-Hyperactivity Scale (WWP; Routh, 1978), which is a short pre-school hyperactivity screening measure. Parent's views of the impact of the condition on children's functioning were then assessed (stage 2). Finally, children had to score 18 or more on a pre-school version of the Parental Account of Childhood Symptoms (PACS; Taylor et al., 1991) interview. Seven children who took part in these trials were excluded from the current analysis because of missing data on the parent-child relations measures employed in these studies. Sample two was newly recruited for the study. It consisted of 42 three-year-old children attending local pre-school facilities. Children were only selected if they scored below the WWP cut-off (score less than 20). There was no descriptive information for the sample such as age of children.

Exclusion criteria for mothers included psychotic illness and severe depression as the influence of these disorders on interaction could unduly influence results. Parents

who were not fluent in English were also excluded, as it would not be possible to conduct assessment procedures in other languages.

4.4.2: Measures

4.4.2.1: Maternal behaviour during interaction

Maternal behaviour was assessed by observation of videotaped mother-child interactions (Daley, Sonuga-Barke & Thompson, 2003). Mothers played with their child for 10 minutes with a toy. The "Fun Park" is a multi-purpose toy that includes a number of different activity zones (i.e., roller-coaster, ferries wheel and airplanes). The instrument has high code-recode reliability (r= .73), inter-observer (r= .76) and test-retest reliability (r= .66). It also has good validity, differentiating between AD/HD and non-AD/HD groups on mother-child interactions. In the present study, the inter-observer intra-class correlation was r= .66 (ranging from .61 to .74).

The observation's coding scheme was drawn from Daley et al's., (2003) study. The behavioural categories were over-control, criticism, expansion, affection and separate play. These categories were selected because previous studies of parent-child interactions consistently demonstrate that in contrast to non-problem children parents of children with AD/HD use more control, more negative statements, less praise and play with their child for less time (Mash & Johnston, 1983).

The behavioural categories reflected:
Over-control: Any command given to the child in a negative tone of voice. The mother attempted to control the direction of play or the actions of the child.
Criticism: A comment that was critical of the child or something the child had done.
Expansion: A question or comment that expanded on play. The mother introduced something new that was not present in the play. It did not include switching to a part of toy that had not been used before.
Affection: Episodes of physical affection such as cuddles, play fighting, tactile displays of affection, or verbal episodes such as joint laughter. Tone of voice was very important and it had to be positive.
Separate play: Mother and child played simultaneously but separately. For example, mother and child played with different parts of the toy. This included coding any maternal switch that was not followed by the child.

4.4.2.2: Expressed Emotion (EE)

EE (Vaughn & Leff, 1976) was measured with the Pre-school Five Minute Speech Sample (PFMSS; Daley et al., 2003). The PFMSS is a speech sample measure of EE for pre-school children. It includes five components: initial statement (scored as positive, neutral, negative with higher scores represent a negative initial statement), relationship (scored as positive, neutral, negative with higher scores represent a negative relationship), warmth (scored as high, moderate, low with higher scores represent low warmth), positive comments (scored as a frequency count of positive comments) and negative comments (scored as a frequency count of negative comments).

A set of standardised instructions given to parents asked them to speak for five minutes about their child, giving the experimenter details about the child characteristics and information about their relationship with the child. The PFMSS demonstrates acceptable code-recode and inter-rater reliability, and adequate test-retest reliability. It also demonstrates acceptable validity and discriminates between parents of pre-school children with AD/HD and children without AD/HD. In the present study, the inter-rater intra-class correlation was r= .65.

4.4.2.3: Maternal AD/HD symptoms

Maternal AD/HD symptoms were measured with the Adult AD/HD Rating Scale (AARS; Barkley & Murphy, 1998, as in Study 1). There is a copy of this questionnaire in Appendix 1.

4.4.2.4: Child AD/HD symptoms

Child hyperactivity was assessed using the Werry-Weiss-Peters-Hyperactivity Scale (WWP; Routh, 1978). The WWP consists of 27 items (e.g., "when drawing, colouring, writing or doing homework, does the child get up and down?" or "during meals, does the child interrupt without regard to what others are trying to say?"), and it provides a single overall rating of activity problems displayed by pre-school children in settings such as at home and while shopping. Parents rated their child behaviour on a 3-point scale, ranging from (0=No or hardly ever) to (2=Yes very often). There is a copy of this questionnaire in Appendix 7.

4.4.2.5: Maternal depressive characteristics

Maternal depressive characteristics of the first group were measured with the General Health Questionnaire-30 item version and depressive characteristics of the

second group were assessed with the General Health Questionnaire-12 item version (GHQ; Goldberg, 1978; 1982, as in Study 1). The GHQ12 and GHQ30 produce results that are comparable (Goldberg, Gater, Sartorius, Ustun, Piccinelli, Gureje & Rutter, 1997). The GHQ30 contains 30 items. Scores from the 30 items were combined to provide an overall rating. A cut-off of 3 and 5 symptoms for the GHQ12 and the GHQ30, respectively indicates a positive screen for depressive characteristics. There is a copy of the GHQ12 in Appendix 3 and a copy of the GHQ30 in Appendix 8.

4.4.2.6: Child emotional symptoms

Child emotional symptoms were assessed with the Behaviour Checklist (Sonuga-Barke, Thompson, Stevenson & Viney, 1997). This questionnaire consists the following scales: social, emotional symptoms, sleep problems, overactive/inattentive behaviour, soiling/wetting and feeding problems. It contains 19 items and parents choose one of three statements that apply best to their child and rate how much each behaviour is a problem for them on a 6-point scale, ranging from (0=Not a problem) to (5=Severe problems). The questionnaire has satisfactory reliability and predictive validity (Sonuga-Barke et al., 1997). The emotional symptoms scale (e.g., "has many different worries, broods over things, e.g., illness, accidents, monsters, changes") was used and a cut-off of 2 symptoms identifies children in the abnormal range (i.e., over one standard deviation above the mean in a normal population sample; Sonuga-Barke et al., 1997). There is a copy of this questionnaire in Appendix 9.

4.4.2.7: Child social problems

Child social problems were assessed with the Behaviour Checklist (Sonuga-Barke et al., 1997). Parents choose one item (e.g., "finds it very difficult to play with other children") and rate how much the child's behaviour is a problem for them on a 6-point scale, ranging from (0=Not a problem) to (5=severe problems). A cut-off of 4 symptoms identifies children in the abnormal range (i.e., over one standard deviation above the mean in a normal population sample; Sonuga-Barke et al., 1997). There is a copy of this questionnaire in Appendix 9.

4.4.3: Procedure

Data was collected during home visits. For the group of children and mothers participating in the parenting trial, this visit constituted the base-line pre-treatment assessment. Mother-child interactions were tape-recorded and the Pre-school Five

Minutes Speech Sample was audio-taped. Packs of the questionnaire were posted to the parents prior to and collected at the time of the visit.

For the second group, participants were recruited through nurseries. Nursery managers were provided with information about the aim of the study. After receiving consent from the nursery managers, parents were administered with a pack of questionnaires. Parents were visited at home for the interactions and the PFMSS. Questionnaires were collected at the time of the visit. The confidentiality of the information supplied by the participants were emphasised on the information letter. There is a copy of the information letter in Appendix 10 and a copy of the consent form in Appendix 11.

4.5: Overview of the Analytical Strategy

The results are presented in four sections. First, descriptive statistics and scores of abnormal levels and correlations are presented for the whole sample broken down by child gender. Second, factor analysis between measures of EE and mother-child interactions were conducted in order to reduce the number of variables for subsequent analysis. Third, multiple regressions were conducted in order to examine the independent contribution of child and maternal AD/HD symptoms in predicting parenting. Multiple regressions were conducted again after controlling for child emotional symptoms and social problems and maternal depressive characteristics. Finally, hierarchical regressions were used to control for the effects of negative parenting in the analysis of positive parenting and vice versa.

4.6: Results

4.6.1: Proportion of participants meeting cut-off for adjustment problems and correlation analyses

Table 4.1 displays descriptive statistics and proportion of abnormal scores on questionnaires for the child and the mother broken down by child gender. As it was expected the proportion of children and mothers' displaying problems in Study 2 was significantly higher than in Study 1 across all domains including child and maternal AD/HD symptoms. Boys had more social problems than girls.

Table 4.1: Proportion of Mothers and Children Meeting Cut-offs on Measures of Child and Maternal Problems for the Whole Sample Broken Down by Child Gender

	Boys (N=112)	Girls (N=80)	t
Child AD/HD symptoms			
Mean	26.83 (10.40)	24.67 (12.48)	
Range	0-54	2-54	1.27
% abnormal (>20 WWP)	87.9	75.7	
Child social problems			
Mean	4.04 (2.17)	3.15 (1.94)	
Range	0-10	0-8	2.83**
% abnormal (> 4 BCL)	58.5	40.8	
Child emotional symptoms			
Mean	1.51 (1.38)	1.43 (1.41)	
Range	0-5	0-5	0.36
% abnormal (> 2 BCL)	42.7	39.5	
Maternal AD/HD symptoms			
Mean	10.93 (9.67)	9.31 (7.71)	
Range	0-40	0-38	1.22
% abnormal (>9 AARS)	7.14	5.0	
Maternal depressive characteristics			
Mean	.24 (.27)	.21 (.26)	
Range	0-1	0-.92	1.01
% abnormal (>3/5 GHQ12/30)	72.4	61.9	

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

Note: AD/HD=Attention Deficit Hyperactivity Disorder; WWP=Werry-Weiss-Peters Hyperactivity Scale; BCL=Behaviour Checklist; AARS=Adult AD/HD Rating Scale; GHQ=General Health Questionnaire (score per item): Figures in parentheses represent standard deviations

Table 4.2 displays correlations between child and maternal measures of psychopathology. Overall, correlations were in the expected direction. Maternal AD/HD symptoms and maternal depressive characteristics were positively correlated. Child AD/HD symptoms were positively correlated with child emotional symptoms and child social problems and maternal depressive characteristics. Child emotional symptoms were positively correlated with child social problems and maternal AD/HD

symptoms. Child social problems were positively correlated with maternal AD/HD symptoms and maternal depressive characteristics.

Table 4.2: Correlations Between Measures of Child and Maternal Psychopathology

	1	2	3	4	5
1. Child AD/HD symptoms					
2. Child emotional symptoms	.30**				
3. Child social problems	.42**	.41**			
4. Maternal AD/HD symptoms	.12	.17*	.23**		
5. Maternal depressive characteristics	.25**	.13	.21**	.53**	

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

4.6.2: Correlations and factor analysis for mother-child interaction and EE

Table 4.3 displays correlations among components of EE, mother-child interactions and child and maternal psychopathology. Overall, correlations were in the expected direction. Initial statement was positively correlated with warmth and relationship. Warmth was positively correlated with relationship and negatively with positive comments. Relationship was positively correlated with negative comments and negatively with positive comments and affection. Negative comments were negatively correlated with positive comments and they were positively correlated with criticism. Positive comments were positively correlated with affection. Expansion was positively correlated with affection. Separate play was positively correlated with over-control. The significant correlations between mother-child interaction and EE provide further validation for the measures. Furthermore, there were significant correlations among measures of EE, mother-child interaction and child and maternal psychopathology. Negative initial statement was positively correlated with child emotional symptoms and maternal AD/HD symptoms. Low warmth was positively correlated with child emotional symptoms and social problems and maternal AD/HD symptoms and depressive characteristics. Relationship was positively correlated with child AD/HD and emotional symptoms and child social problems and with maternal AD/HD symptoms. Negative comments were positively correlated with child AD/HD and social problems and with maternal depressive characteristics. Positive comments were negatively correlated with all measures of child and maternal psychopathology. Over-control was positively correlated with maternal AD/HD symptoms. Finally, affection was negatively correlated with child AD/HD symptoms and child social problems and emotional symptoms.

Table 4.3: Correlations Among Components of EE, Mother-Child Interaction and Child and Maternal Psychopathology

	1	2	3	4	5	6	7	8	9	10
1. Initial Statement										
2. Warmth	.39**									
3. Relationship	.34**	.49**								
4. Negative Comments	-.003	.04	.28**							
5. Positive Comments	-.08	-.27**	-.32**	-.43**						
6. Expansion	-.02	-.04	.003	-.03	.02					
7. Over-control	.05	.06	.12	.07	-.09	-.05				
8. Criticism	-.07	-.09	-.04	.15*	-.03	-.12	.08			
9. Affection	-.11	-.07	-.24**	-.13	.22**	.33**	-.03	-.12		
10. Separate play	-.02	.04	.04	.14	-.03	-.13	.16*	.09		
11. Child AD/HD	.12	.09	.33**	.45**	-.45**	-.13	.09	.09	-.32**	.01
12. Child emotional	.20**	.17*	.31**	.12	-.24**	-.01	.06	-.04	-.15*	.04
13. Child social	.14	.19*	.30**	.42**	-.40**	-.07	.08	-.02	-.27**	.08
14. Mother AD/HD	.20**	.29**	.20**	.14	-.24**	.01	.20*	-.08	-.07	.10
15. Mother depressive	.14	.16*	.13	.29**	-.23**	-.08	.13	.01	-.11	.10

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

To reduce the number of maternal parenting measures to their principal components for use in subsequent analysis, components of EE and mother-child interaction were submitted to factors analysis. Factors were rotated to a varimax solution with orthogonal components. Three factors with eigen values greater than 1 were extracted. This solution accounted for 50 percent of the total variance. Negative initial statement, low warmth and negative relationship loaded on the first factor (Negative Expressed Emotion - NEE). This factor accounted for the 19 percent of the total variance. Negative comments and lack of positive comments loaded on the second factor (Negative Comments-NCom). This factor accounted for the 16 percent of the total variance. Expansion, lack of criticism, affection and lack of separate play loaded on the third factor (Affectionate and Constructive Parenting - ACP). This factor accounted for the 15 percent of the total variance. No other item to factor loading exceeded .3. The factor loadings of the items are presented in Table 4.4.

Table 4.4: Factor Matrix for Components of EE and Mother-Child Interaction

	NEE	NCom	ACP
1. Negative Initial Statement	**.75**	-.11	-.04
2. Warmth	**.79**	.12	.03
3. Relationship	**.69**	.41	-.07
4. Negative Comments	-.07	**.85**	-.12
5. Positive Comments	-.26	**-.75**	.08
6. Over-control	.05	.24	-.19
7. Expansion	-.04	.17	**.81**
8. Criticism	-.31	.22	**-.41**
9. Affection	-.21	-.12	**.71**
10. Separate play	-.03	.15	**-.32**

Table 4.5 displays correlations among the parenting factors and measures of child and maternal psychopathology. Both child and maternal AD/HD symptoms were positively related to negative aspects of parenting. Child AD/HD symptoms were associated with less ACP and more NCom. In contrast, maternal AD/HD symptoms were associated with more NEE and more NCom. Mother and child emotional problems were also associated with maternal behaviour. Maternal depressive characteristics were associated with more NCom and child emotional symptoms were associated with more NEE and more NCom. Social problems were associated with more NEE and more NCom.

Table 4.5: Associations Among the Factors and Child and Maternal Psychopathology

	Child AD/HD	Child Emotional	Child Social	Maternal AD/HD	Maternal Depressive
1. NEE	.15	.28**	.22**	.29**	.12
2. ACP	-.20**	-.06	-.14	-.01	-.10
3. NCom	.50**	.19*	.44**	.20**	.28**

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

In order to examine the independent contribution of child and maternal AD/HD symptoms as well as their interaction, three separate multiple regressions were conducted entering child and maternal AD/HD symptoms and a term representing the interaction between the two. The interaction term was calculated by multiplying together the standardized values for child and maternal AD/HD symptoms. Scores for ACP, NEE and NCom were the outcome variables. All factors were entered into the model in one step.

4.6.3: Effects of child and maternal AD/HD symptoms on ACP

For ACP, the overall regression model was significant $F(3, 171) = 4.15$, $p < .01$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2 = .05$). There was both a negative trend between child AD/HD symptoms and ACP ($\beta = -.14$, $p = .082$), and a positive association between the interaction term ($\beta = .19$, $p < .01$) and ACP. There was no effect of maternal AD/HD symptoms ($\beta = -.03$, ns) on ACP. There was a trend for the interaction to remain significant even after controlling for the effects of child emotional symptoms and social problems and maternal depressive characteristics ($\beta = .16$, $p = .068$). To control for the effects of Negative Expressed Emotion and Negative Comments, hierarchical regressions were used. Negative Expressed Emotion and Negative Comments were entered in the first step, child and maternal AD/HD symptoms were entered in the

second step and the interaction between the two in the third step. The results revealed that the interaction remained significant ($\beta = .19$, $p < .05$).

These effects are represented graphically in Figure 4.1. As in Study 1, for ease of interpretation, participants were divided into three groups on the basis of a low, medium, and high split on maternal AD/HD symptoms (Low group = below the 33 percentile; high group = above the 66 percentile; medium group = between the 33 and 66 percentiles).

The scores relating child AD/HD symptoms to ACP were then plotted for each of these groups and a line fitted through the relevant points. From Figure 4.1, one can see that the lines for the low and medium maternal AD/HD groups almost coincide with each other. For these two groups, there was a negative slope and a negative association between ACP and child AD/HD symptoms. For the low and medium groups, the parenting became less Affectionate and Constructive as the levels of child AD/HD symptoms increased. For the high group, there is a slight positive slope with Affectionate and Constructive parenting increasing as child AD/HD symptoms increased.

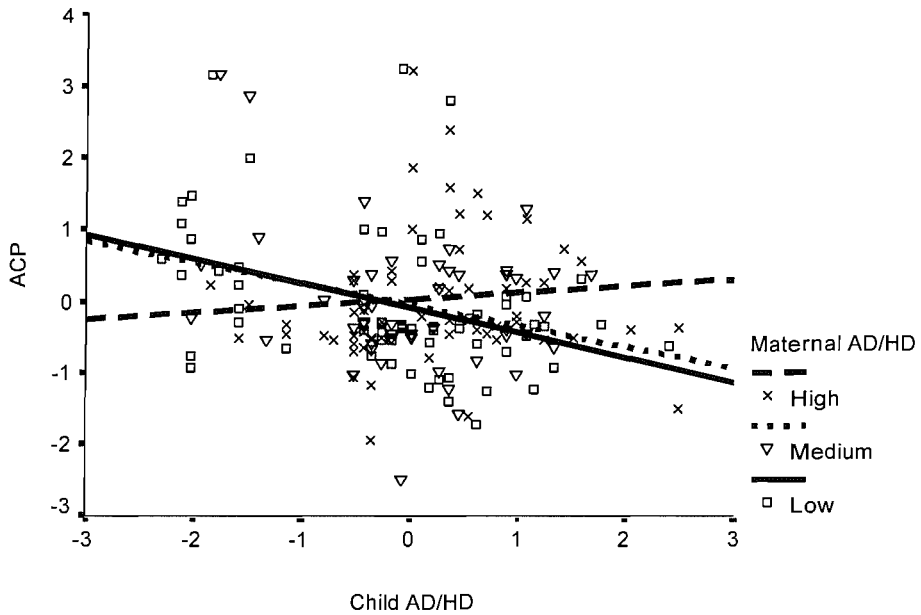


Fig 4.1: Association between child and maternal AD/HD on ACP

Note: ACP = Affectionate and Constructive Parenting

4.6.4: Effects of child and maternal AD/HD symptoms on NEE

For NEE, the overall regression model was significant $F(3, 171) = 6.12$, $p < .01$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2 = .08$). There was a positive trend between child AD/HD symptoms ($\beta = .14$, $p = .072$) and NEE and a positive association between maternal AD/HD symptoms ($\beta = .25$, $p < .001$) and NEE. The association between the interaction term and NEE was not significant ($\beta = .08$, ns). Only the effect of maternal AD/HD symptoms on parenting remained significant after controlling for other factors with an increase in the β coefficient ($\beta = .32$, $p < .01$). It seems that both child and adult AD/HD symptoms added cumulatively to the risk of NEE. To control for the effects of Affectionate and Constructive Parenting and Negative Comments, hierarchical regression was used. Affectionate and Constructive Parenting and Negative Comments were entered in the first step, child and maternal AD/HD symptoms in the second step and the interaction between the two in the third step. The results revealed that the interaction was non significant ($\beta = .07$, ns). These effects are represented graphically in Figure 4.2. Figure 4.2 shows that for all the three maternal AD/HD groups, there was a slight positive slope between child AD/HD and NEE.

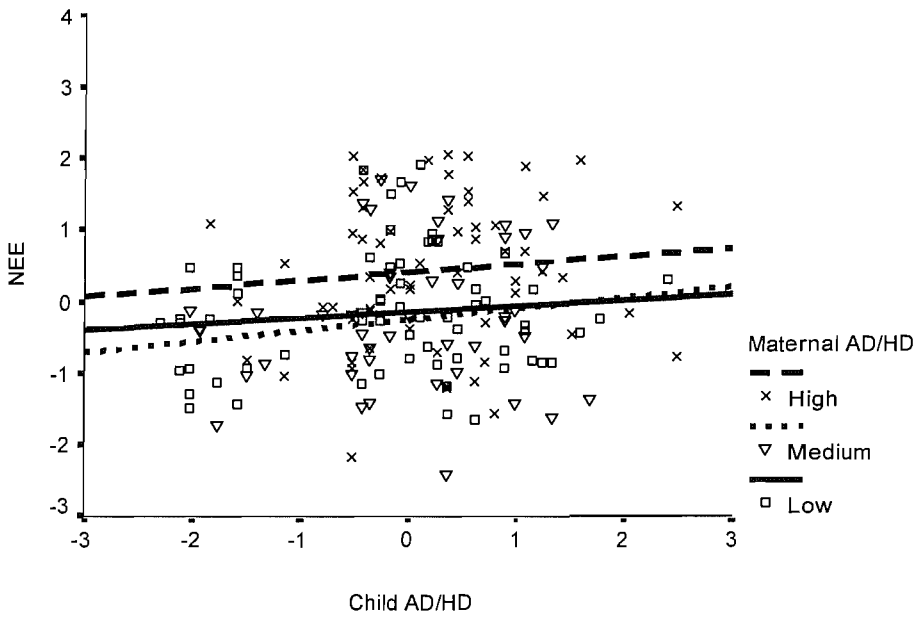


Fig 4.2: Association between child and maternal AD/HD on NEE

Note: NEE = Negative Expressed Emotion

4.6.5: Effects of child and maternal AD/HD symptoms on NCom

For NCom, the model was highly significant $F(3, 171) = 19.98$, $p < .001$, with the combination of predictors accounting for a significant amount of the variance (Adjusted $R^2 = .25$). The effect was carried by a significant positive association between child AD/HD symptoms ($\beta = .46$, $p < .001$) and NCom and a positive trend between maternal AD/HD symptoms ($\beta = .13$, $p = .063$) and Ncom (Figure 4.3). There was no association between the interaction term ($\beta = -.05$, ns) and NCom. Once child emotional symptoms and social problems and maternal depressive characteristics were controlled, the effect of child AD/HD symptoms on NCom remained significant ($\beta = .33$, $p < .001$). To control for the effects of Affectionate and Constructive Parenting and Negative Expressed Emotion, hierarchical regressions was used. Affectionate and Constructive Parenting and Negative Expressed Emotion were entered in the first step, child and maternal AD/HD symptoms were entered in the second step and the interaction between the two in the third step. The results revealed that the interaction was not significant ($\beta = -.06$, ns). Figure 4.3 shows that for all the groups (low, medium and high maternal AD/HD symptoms), there was a positive slope and a positive association between child AD/HD symptoms and NCom.

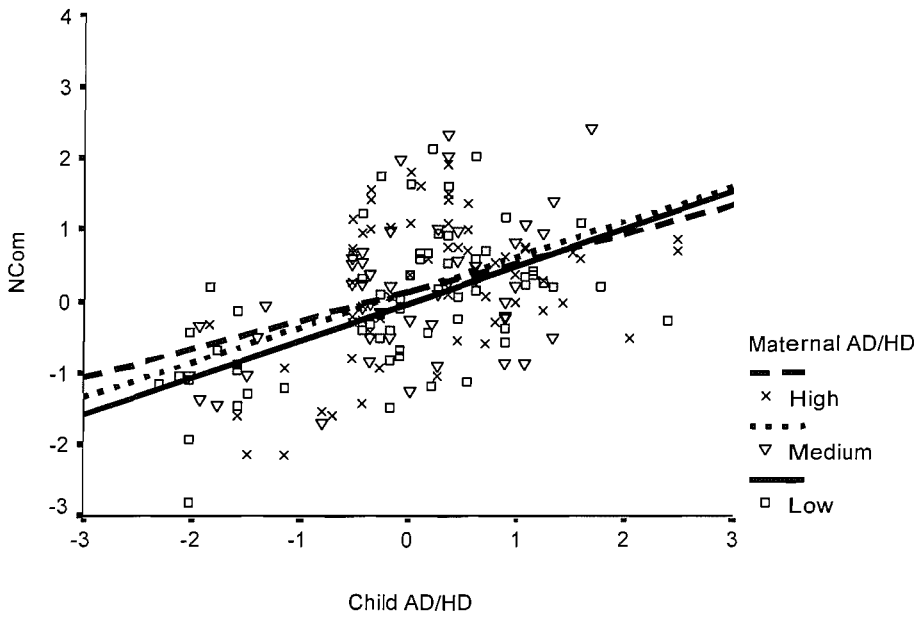


Fig 4.3: Association between child and maternal AD/HD on NCom

Note: NCom = Negative Comments

4.7: Discussion

The aim of the present study was to replicate the findings of Study 1 by using a large sample and observational data of mother-child interactions during a play task. Specifically, the study examined the effects of child and maternal AD/HD symptoms and the interaction between Child X Maternal AD/HD symptoms in predicting parenting. The results provided support for the predictions. Child AD/HD and maternal AD/HD symptoms were associated with negative parenting. As it was found for Study 1, child and maternal AD/HD symptoms interacted with each other in increasing positive parenting. The findings provided further validation for the phenomenon.

4.7.1: Child effects

Child AD/HD symptoms were associated with increased Negative Comments (NCom - Negative comments and lack of positive comments) and decreased (marginally) Affectionate and Constructive Parenting (ACP - Expansion, lack of criticism, affection and lack of separate play) and (marginally) increased Negative Expressed Emotion (NEE - Negative initial statement, negative relationship and low warmth). Some of these effects remained significant after controlling for the contribution of other child and maternal adjustment problems.

These findings are in accord with previous studies. In the discussion of Study 1 (Section 3.7.1), a number of studies documented an association between child AD/HD and negative parenting (Stormshak et al., 2000; Woodward et al., 1998). Similar results are drawn from studies using observations of parent-child interactions. These studies consistently show that the parent-child interactions involving children with AD/HD are characterised by negativity, direction, criticism and conflict in comparison to interactions of children without the disorder (Danforth et al., 1991). Keown and Woodward (2002) examined the quality of parent-child relationships and family functioning of pre-school children with early onset of hyperactivity by comparing a community sample of 33 pervasive hyperactive preschool boys with 34 control boys. The results revealed that child hyperactivity was associated with less synchronicity during the mother-child interaction and more lax disciplinary practices, after controlling for conduct problems and other confounding factors. Also, the results revealed an association between hyperactivity and less efficient parental coping. Using a school age sample, Anderson et al., (1994) examined the relationship between maternal behaviour during mother-son interactions and observed overt and

covert externalising behaviour in the child by comparing 49 boys with AD/HD and 37 comparison boys. The results revealed an association between observed non-compliance exhibited in class and play settings and laboratory stealing and maternal negative behaviours.

Other researchers find the same results by using more structured problem solving tasks. For example, Winsler (1998) examined parent-child interactions and scaffolding using joint problem solving among children with AD/HD and controls. They found that parents of children with AD/HD used more negative verbal control strategies. Parents of children with AD/HD used poorer quality of scaffolding, and withdrew control during collaboration less often.

The present study did not examine father-child interactions. However, some previous findings suggest differences in the interactional style between mothers and fathers. Buhrmester et al., (1992) compared mother-son and father-son interactions in families of school age children with hyperactivity and controls. They found that in the families of children with hyperactivity there was more coercion than in the families of controls, especially when mothers interacted with their son. When there was a triadic interaction, they found that fathers increased and mothers decreased their demands and fathers and sons became more negative toward each other in triads than in dyads.

In another study, Miller, Cowan, Cowan, Hetherington and Clingempeel (1993) found that maternal supportiveness, observed positive emotions and responsiveness during a teaching task and unstructured play tasks was negatively related to child behaviour problems. Fathers' parenting was similarly negatively related to behaviour problems in children. In summary, Study 2 suggests that child AD/HD symptoms are associated with negative parenting. The finding seems to be validated using observational data (Study 2) and questionnaires (Study 1) in pre-school (Study 2) and school age children (Study 1).

4.7.2: Maternal effects

Study 2 examined the effects of maternal AD/HD symptoms on parenting. The results revealed that maternal AD/HD symptoms were positively associated with NEE and (marginally) with NCom. Importantly, the effect of maternal AD/HD symptoms on NEE remained significant above and beyond the contribution of other child and maternal adjustment problems. Overall, it seems that AD/HD symptoms in mothers

are associated with a negative emotional climate at home. As there is a paucity of research on AD/HD in adulthood, only speculations can be made about what this effect is carried by. It is possible that adults with the disorder might have problems with regulating their emotional state as it is found for children with AD/HD (Melnick & Hinshaw, 2000; Maedgen & Carlson, 2000).

Specifically, Melnick and Hinshaw (2000) examined emotional regulation and reactivity in school age boys with AD/HD in a family task that was designed to elicit frustration. They found that control children and children with low levels of AD/HD and aggression displayed skills in regulating internal states, and as a consequence, such skills might help them to solve the problem or generate a solution that would reduce arousal. In contrast, they found that boys with AD/HD maintained high levels of arousal because of a tendency to focus on the thwarting aspects of the problem they were trying to solve.

Maedgen and Carlson (2000) found that children with AD/HD-Combined type were more intense in their negative and positive emotional displays and they were found to be less effective in regulating their emotions. Other studies provide evidence that many young children with externalising problems are vulnerable to express or act out negative emotions without having an awareness of their emotional states, and as a consequence, they reduce the likelihood that they will actively regulate such expressions (Greenberg, Kusche, Cook & Quamma, 1995). Also, there is the alternative explanation that their initial emotional reaction may have such intensity that compromises or pre-empts any attempts at subsequent regulation (Westen, Muderrisoglu, Fowler, Shedler & Koren, 1997). Aggressive or disruptive behaviours may reflect misguided attempts to communicate this helplessness (Cole, Michel & Teti, 1994), and it is likely that such effects might persist into adulthood.

Based on these findings, it is speculated that adults with AD/HD may face quite similar problems in affect regulation, which in consequence undermine effective parenting. Previous studies suggest that poorly regulated negative emotions bring about reactive parenting, which is often characterised by excessive prohibitions, yelling, and physical discipline (Conger et al., 1994; Fauber et al., 1990; Cummings & Davis, 1994). To the contrary, parents who are able to manage their negative feelings and are not overwhelmed by them may be able to acknowledge the child's needs and feelings. It is likely that these parents are more likely to generate creative, flexible solutions in difficult situations and they are likely to teach the child how to

manage his/her own emotions and behaviours. It is possible that parents who manage their own frustration when interacting with their children are more likely to use negotiation and rational guidance in dealing with the child misbehaviour.

Therefore, in this process it is important to acknowledge what role the child misbehaviour plays. The child with AD/HD often exhibits difficult behaviour and the parent-child dyad has a shared experience of sub-optimal interactions (Befera & Barkley, 1985; Mash & Johnston, 1982). The child with AD/HD might create an abundance of opportunities for parents' frustration and irritation that maybe is exacerbated by their own emotional vulnerability. Thus, human interactions are complicated and there are factors involved that can change the interactions in unexpected directions.

4.7.3: Child and maternal effects

Child AD/HD symptoms interacted with maternal AD/HD symptoms in increasing Affectionate and Constructive Parenting. The interaction remained (marginally) significant above and beyond the contribution of child emotional symptoms and social problems and maternal depressive characteristics. The results replicated the findings of Study 1 but using a different methodology (more objective measures of parenting practises and a large sample). Both studies suggest that this might be a robust phenomenon that needs further investigation. There are a number of factors that could possibly account for this interaction, but at this stage only speculations can be made. Perhaps, children with AD/HD do not provoke parents with high levels of AD/HD symptoms to the same extent as they do parents with low AD/HD symptoms. When mother and child share a similar motivational and cognitive tempo, they may enter into conflict less often than when such a match does not exist.
In a similar fashion, it is likely that mothers with high AD/HD symptoms are more tolerant and less annoyed by child misbehaviour. Eyberg and Pincus (1999) suggested that the level of parental tolerance differs as a function of the frequency of child difficult behaviour and the parental level of annoyance for child difficult behaviour. Based on previous findings, it is assumed that children with AD/HD exhibit misbehaviour quite often (Befera & Barkley, 1985; Mash & Johnston, 1982; Cunningham & Barkley, 1979). However, maybe mothers with high levels of AD/HD may interpret and respond to them in a different way than mothers without the disorder. Such a response may be dependent on maternal tolerance for these annoying behaviours and maternal sensitivity to the difficulties that the child experiences.

High levels of maternal tolerance may be facilitated because mothers with AD/HD symptoms may find it easier to take their child's perspective and might easily understand how their child feels. Mothers with high AD/HD symptoms who bring up a child with the same disorder may have a special understanding of what the child experiences and may be more empathic. Weiss, Hetchman & Weiss (2000) made the clinical observation that parents with AD/HD may be unusually tolerant of AD/HD symptoms in their children. This observation is also in accordance with the study by Biederman et al., (2002) that was described in Study 1 (Section 3.7.3).

Weiss et al., (2000) went on to suggest that the AD/HD symptomatology in the parent might, to some extent, be useful for the child. A child who realises that the parent suffers from the same disorder may not build a negative self-concept and may not come to view the self as "different", "sick" or "bad". In addition, if parents with AD/HD are effective in dealing with their symptoms, behaviours and the responses they provoke in others, they may constitute an accessible model to their children about managing the disorder. Finally, Weiss et al., (2000) suggested that parents with AD/HD know the implications and the difficulties the disorder infer and they may be determined that their offspring will not experience the same difficulties and rejections which are associated with AD/HD. These clinical observations appear sensible, yet, they may also require a number of factors to be at play. For example, the parent with AD/HD should be aware of the disorder in themselves and their child and they might need to have a level of cognitive sophistication to understand what their child experiences. Additionally, a positive parent-child relationship might be required for the parents to help the child avoid rejections, struggles and negative experiences.

Another possibility is that the results in the present study were an artefact of rating bias and that mothers with high levels of AD/HD symptoms were simply less aware of the behaviour of their children. This limitation is addressed in Study 3.

An issue that comes up from these results relates to the implications of this parenting style for the child development. Undoubtedly, strong evidence demonstrates that positive parenting predicts child adjustment and is associated with children's socio-emotional and cognitive development (Baumrind, 1971; Lewis, 1981). However, it is not known whether this style of parenting adopted by mother's with AD/HD symptoms is appropriate for the child with AD/HD. Mothers with AD/HD may be very prone to adopting a lax style of parenting. These mothers may seldom place appropriate limits and requirements on the child or help the child learn self-control, exacerbating in this

way uncontrolled and impulsive behaviour in the child. Possibly mothers adopt that style of parenting all the time without differentiating between the different demands of the circumstances. For example, research found that children with AD/HD-Combined type have difficulty "switching set" and that their behaviour often does not change despite change in the environmental conditions (Landau & Milich, 1988). Likewise, mothers with AD/HD may not assess the circumstances appropriately and they may not think about what parental response would contribute best to the child development. They may adopt that style of parenting all the time despite the fact that the circumstances require other parenting qualities that would be beneficial for the child adjustment and development.

However, more positively this style of parenting may be associated with high expectations for high child developmental outcomes. Previous research suggests that positive parent-child interactions might influence the development and the course of disorders, especially during the preschool years (Bishop & Rothbaum, 1992, Pettit & Bates, 1989). Parpal and Maccoby (1985) suggested that responsive and involved parenting may lead to positive mood states in the children that can help children develop a helpful and co-operative behaviour. Maccoby and Martin (1983) suggested that warm, playful interactions might help prevent problem behaviour because the child is disposed to match the parental responsiveness with willing compliance.

In support of these suggestions, Russell and Russell (1996) found an association between aspects of positive parenting such as parental warmth, affection and involvement and lower levels of child misbehaviour in a normative sample. Deater-Deckard and Petrill (2004) examined the association between parent-child mutuality and child behaviour problems. Mutuality defined as a construct, which consists of reciprocity, co-responsiveness and cooperation between the child and the parent was found to be associated with lower levels of child behaviour problems.

Other research has found strong links between positive interactions and the prevention of the development of conduct problems. Gardner, Ward, Burton and Wilson (2003) examined the relationship between mother-child spontaneous joint play and the development of conduct problems in preschool children. They found that the amount of time spent in joint play when the child was 3 years old was a predictor of individual improvements in conduct problems when the child was 4 years old. This association was independent of initial levels of child conduct problems and

hyperactivity, social class, maternal depression, and frequency of negative mother-child interaction.

Criss and Shaw (2003) examined mother-son positive and synchronous interactions and their association with antisocial behaviour during childhood. They found that mother-son dyads which were characterised by highly synchronous interactions reported lower levels of child antisocial behaviour compared to other children. Also, these mother-son dyads reported having higher levels of parent-child conflict openness and monitoring and lower levels of parent-child conflict and harsh discipline.

4.7.4: Methodological considerations

The findings from Study 2 support the predictions and replicated the findings of Study 1 by using a different methodology and a large sample. However, they must be interpreted with caution given some methodological limitations. First of all, maternal behaviour was assessed by mother-child play interactions. Play interactions are an unstructured task, and because of their low structure and demands that they place on the child, they might bring about high levels of maternal affection and warmth and other positive aspects of parenting (Johnston et al., 2002). Yet, it may be necessary to collect observational data with parents and their pre-schoolers during a more stressful situation than free play, such as during meal or bed times. In support of this suggestion, DuPaul et al., (2001) found that children with AD/HD displayed more than twice the level of non-compliance and greater than five times the level of inappropriate behaviour displayed by controls when asked by their parents to complete tasks such as cleaning up the playroom. In addition, parents displayed negative behaviour toward their children three times more frequently than did parents of children without the disorder.

Also, the sample consisted of pre-school children. The preschool years represent early stages of the child development and behaviour and the relationship between the parent and the child. Parents may be able to positively reframe the preschool child difficult behaviour. As an example, parents may think that with the passage of time and maturation the preschool child will "grow out of that stage" and will overcome difficulties. As a result, child difficult behaviour may not affect negatively parents' view of the child and also their emotions and responses towards the child.

Another issue relates to the observational techniques employed in the present study, as mothers might be affected by the presence of the observer and therefore there is the danger that their behaviour was not representative of routine mother-child interaction, although, some old studies reported that this is not the case. Bernal, Gibson, Williams and Pesses (1971) and Johnson and Bolstad (1975) compared negative family interactions in the home under two conditions. In the first condition, there was only an audiotape alone and in the second one, there were the audiotape and the observer present. Both studies reported no significant differences between the two conditions in relation to the rates of child negative behaviour. Furthermore, in the present study mother-child interactions were collected at the homes of the participants and not in the unusual setting of a laboratory, and this increases confidence that the behaviours observed reflected the interaction the participants usually have.

Another important limitation is that AD/HD measures (child and mother) were all based on maternal reports and might result in inflated correlations among the variables. Furthermore, parents of children with AD/HD may report more of the symptoms in themselves because they are familiar with AD/HD. This possibility has been suggested by studies that revealed cognitive deficits in adults with AD/HD (Lovejoy, Ball, Keats, Stutts, Spain, Janda & Janusz, 1999). These cognitive deficits coupled with impulsivity and a familiarity with the AD/HD symptomatology might result in parents with AD/HD having more false positive responses about AD/HD symptoms in their children. However, Faraone, Biederman, Monuteaux, Cohan and Mick (2003) compared rates of maternal reported AD/HD symptoms in 3 groups of children with AD/HD: no parental AD/HD, mother with AD/HD and father with AD/HD. They found that parental AD/HD did not affect maternal reports of their children's AD/HD. The findings were in line with another study (Faraone, Biederman & Mick, 1997) which found that adults with AD/HD are not biased to either overreport or underreport the prevalence of AD/HD symptoms in the offspring. Despite this evidence, it would be a better option if future studies used independent ratings made by a third party.

Finally, the sample consisted of participants with mild and medium levels of AD/HD symptoms, and it did not include parents with a clinical diagnosis of AD/HD. This meant that the range of severity of symptoms was narrower for mother than for children. Given the possibility that the interaction between parental and child AD/HD

might differ as a function symptom severity, it would be important for future studies to include a higher proportion of more severe cases of maternal AD/HD.

4.8: Summary and Aims of Study 3

In summary, the results from Studies 1 and 2 revealed that child AD/HD symptoms and maternal AD/HD symptoms were associated with negative parenting. Importantly, the effects of maternal and child AD/HD symptoms were independent of each other, and in most cases persisted, even when other features of maternal and child problems were taken into account. As in Study 1, maternal AD/HD symptoms seemed to "protect" the child with AD/HD symptoms from the pattern of low levels of positive parenting, which they typically experience, at least where their mother's do not share this behavioural characteristic. Although unexpected, this was a replicated finding and it justifies further enquiry and analysis.

Study 3 addresses limitations of Studies 1 and 2 as:
(1) It includes fathers.
(2) It recruits participants from AD/HD support groups to increase the severity of parental AD/HD symptoms.
(3) It recruits teachers as independent reporters on child AD/HD symptoms.
(4) It controls for the effects of child emotional symptoms and conduct problems and parental depressive and anti-social characteristics.
(5) It examines the association between parenting and empathy towards the child.

4.8.1: Inclusion of fathers

Study 3 includes fathers and investigates the effects of fathers' AD/HD symptoms on parenting. In previous studies, mothers have been the focus of research attention and the role the fathers play in the development of child behavioural problems has been ignored, leaving a large gap in theory and empirical evidence (Phares, 1992). For example, Phares and Compas (1992) in a literature review, found that only 26 % of studies in child and adolescent psychopathology included both parents and provided separate analysis for mothers and fathers. There are important reasons for gaining a better understanding of the impact of fathers on child development. Fathers contribute to child care and they contribute to 50 % of their children's genes (Phares & Compas, 1992).

There are a number of methodological factors that make the study of mothers easier. Such factors include (1) the assumption that fathers are less willing to take part in research in comparison to mothers, (2) the higher prevalence rates of psychiatric disorders such as depression in women than in men, (3) the higher likelihood that women rather than men with a psychological disorder marry and have a family and (4) the high incidence of divorce, which causes a high percentage of children living in mother-headed households or in step families rather than with their biological fathers (Phares, 1992; Watt, 1986). Other reasons that result in the exclusion of fathers from research include societal norms that highlight the care-giving role of the mother in the life of the child, while it largely ignores fathers to the role of breadwinner. Research has provided mounting evidence that mothers are more involved than fathers in child care both in single and dual-earner families (Lamb, Pleck, Charnov & Levine, 1987).

Studies, which included fathers in their samples found that fathers contribute equally to their child development in much the same way that mothers did and that there was a strong relationship between paternal factors and child and adolescent adjustment (Phares & Compas, 1992). With regard to AD/HD, there are only two studies (Arnold et al., 1997; Harvey et al., 2003) that examined the role of paternal AD/HD symptoms on parenting, and both studies documented an association between fathers' AD/HD and negative parenting.

4.8.2: Severity of AD/HD symptoms

Study 3 aims to include more severe cases of parental AD/HD symptoms in the sample. It might be the case that the elevated positive parenting that was found in Studies 1 and 2 exists only in a sample of participants with medium levels of AD/HD symptoms. It is possible that the results might change if parents have high AD/HD symptoms. For example, Sonuga-Barke, Daley and Thompson (2002) examined the effects of maternal AD/HD on the effectiveness of a parent-training programme for pre-school children with AD/HD. The results revealed that children of mothers with high AD/HD symptoms did not show any improvement after taking part in the parent-training programme. On the contrary, they found that symptoms of AD/HD in the children of mothers with low and medium symptoms declined significantly. The findings suggested that high levels of maternal AD/HD symptoms limited the improvement showed by children with AD/HD after participation in a parent-training programme.

Some differences were also found between levels of maternal AD/HD symptoms and mother-child interactions before and after parent training in the Harvey et al's (2003) study. It was found that, before a parent training programme, mothers who reported medium levels of inattention engaged in the most negative parent-child interactions. After parent training, mothers who reported the most inattention engaged in the most negative interactions.

4.8.3: Teacher reports

Studies 1 and 2 used maternal reports on child AD/HD symptoms and maybe the results were affected by rating bias. Study 3 addresses this limitation by recruiting teachers to report on child AD/HD symptoms. In terms of parent-teacher agreement, a recent study found only low correlations between parental and teacher ratings. Wolraich, Lambert, Bickman, Simmons, Doffing and Worley (2004) examined the interrater reliability on the diagnosis of AD/HD in parents and teachers by using a sample of elementary school age children. They found low agreement between parent and teacher reports on AD/HD symptoms according to DSM-IV based questionnaires. Inattentive ($r = .34$, $\kappa = .27$), hyperactive/Impulsive ($r = .27$, $\kappa = .22$).

It is likely that the ways child behaviour problems are expressed varies across different settings such as home or school (Kazdin & Kagan, 1994) and there may be qualitative differences between children who display AD/HD symptoms in one environment only ("situational AD/HD") and children who display AD/HD symptoms in multiple environments ("pervasive AD/HD"). Goodman and Stevenson (1989) found that "pervasive hyperactivity" is a distinct syndrome, which is characterised by greater severity and a greater level of impairment. In contrast, "situational hyperactivity" is not very well defined and there is the suggestion that "home only" hyperactivity might be, in some cases, an artefact of parental attitudes (Rapoport, Donnelly, Zametkin & Carrougher, 1986). It is also likely that "school-only" hyperactivity is associated with a number of factors such as cognitive impairment, lack of structure in the classroom, or the behaviour management skills of the teacher.

In addition, Study 3 uses teachers' reports on child emotional symptoms and conduct problems. Some evidence suggests that teachers might be more sensitive to disruptive behaviour and parents more sensitive to internalising disorders such as depression or anxiety (Abikoff, Courtney, Pelham & Koplewicz, 1993). Another issue is that agreement should be greater about externalising problems. Internalising behaviours might be more difficult to observe and less disruptive to family or

classroom functioning, and therefore, less likely to get the attention of other people (Ackenbach, McConaughy & Howell, 1987). Therefore, it is beyond the scope of this thesis to investigate such differences.

4.8.4: AD/HD and comorbidity

Studies 1 and 2 considered the influence of child (emotional symptoms, and conduct and social problems) and maternal (depressive characteristics) adjustment problems. Study 3 again examines comorbid symptoms in the child. Comorbidity seems particularly important as a study (Kadesjo & Gillberg, 2001) that examined the comorbidity of AD/HD in the general population sample of Swedish school age children found that 87 % of children who meet full criteria for AD/HD had one or more comorbid diagnosis. The authors suggested that pure AD/HD is rare even in general population samples and that studies which report on AD/HD cases without considering comorbidity probably refer to highly atypical samples. Additionally, Study 3 examines parental depressive characteristics and it extends Studies 1 and 2 as it includes parental antisocial characteristics. Anti-social characteristics are investigated because Study 3 includes fathers and evidence shows a high comorbidity of AD/HD and conduct problems/antisocial personality disorder in fathers of children with AD/HD (Rhee & Waldman, 2002).

Furthermore, qualitative reviews by Phares and Compas (1992) and Phares (1996) have found that paternal antisocial behaviours, alcoholism, substance abuse, are associated with externalising behaviour problems in children, particularly among clinical rather than community samples whereas paternal depression is associated with a range of negative outcomes in children.

Regarding depressive characteristics, complicated relations have been found between maternal depressive symptoms and child's disruptive behaviours. Elgar, Waschbusch, McGrath, Stewart and Curtis (2004) examined temporal relations between daily fluctuations in maternal mood and disruptive behaviour in 30 mother-school age child dyads. The results revealed synchronous fluctuation in child behaviour and maternal distress. It was found that maternal anger and fatigue were related to previous child's symptoms of inattention, impulsivity and over-activity. Also, maternal confusion related to previous child oppositional defiant behaviour. Maternal depression, low vigour, and anxiety each predicted subsequent child inattentive, impulsive and overactive behaviour and maternal confusion and anxiety each predicted subsequent child defiant behaviour.

Also, complicated relations exist between child and parental adjustment problems. Marmostein and Iacono (2004) examined conduct disorder and depression in adolescents and its association with psychopathology in their parents. They found that both child's conduct problems and depression were associated with maternal depression. Also, child's conduct disorder was associated with paternal antisocial behaviour. Furthermore, conduct problems and depression were associated with parent-child conflict. This association was unrelated to whether the father had a history of antisocial behaviour, although, the association between mother-child conflict and psychopathology in the child was associated with the mother having a history of depression.

4.8.5: Empathy

Studies 1 and 2 demonstrated that maternal AD/HD symptoms acted as a "protective" factor for the child with AD/HD symptoms. Assuming that it is a valid phenomenon, Study 3 shifts its focus on the possible factors that help mothers to act more positively. Some interpretations were suggested in the discussion of Study 2. Weiss et al., (2000) mentioned that many parents with AD/HD are empathic for their child with AD/HD. Study 3 investigates this hypothesis. It examines whether parents with high symptoms of AD/HD express more empathy for their child with high symptoms of AD/HD.

Defining empathy appears difficult because it is sometimes regarded as a cognitive process, analogous to cognitive role taking or perspective taking (Deutsch & Madle, 1975), and sometimes is regarded to be characterised by affective qualities (Hoffman, 1976). The most acceptable definition is the one which couples together both affective and cognitive dimensions (Strayer, 1987). The matching of both cognitive and affective elements is underscored in a model by Feshbach's (1978), which highlights that an empathic response is characterised by (1) the ability to discriminate and identify the emotional states of the other person, (2) the capacity to take the perspective or role of the other person and (3) the evocation of a shared affective response.

Empathic concern is defined as an emotional reaction, which is characterised by feelings of compassion, tenderness, and sympathy. Perspective taking, where one person considers the point of view of another, brings about empathy. Perspective taking is caused by a perception of attachment (kinship, friendship, familiarity,

similarity) to the other person or by instructions to take another's perspective (Batson, 1991).

Individual differences have been reported in empathic emotions (Batson & Coke, 1983). These differences may be due to (1) different experience with the particular situation (e.g., having previously suffered in the same way), (2) different perception of the situation due to proximity or focus of attention, (3) different relationship to the person whose welfare is in question and (4) dispositional differences in either general emotionality or in the ability and readiness to experience empathic emotion.

One emotional response that is related to, but distinct from, empathy (at least at a conceptual level) is personal distress. Personal distress involves feeling alarmed, upset, disturbed, distressed and/or perturbed (Batson et al., 1987; Batson, 1991). Batson et al., (1987) suggests that personal distress evokes egoistic motivation to have one's own vicarious emotional arousal (distress) reduced, whereas empathy evokes altruistic motivation to have the other's need reduced.

4.9: Aims of Study 3

Study 3 addresses the limitations of Studies 1 and 2 and its aims were:

(1) To examine the relationship between parental and child AD/HD symptoms and three dimensions of parental response to children a) parenting, b) empathy towards the child and c) EE.

(2) To examine the relationship between child AD/HD symptoms and other aspects of behaviour.

(3) To look at how parental and child AD/HD symptoms interact in relation to parenting. In particular, to test the hypothesis that parents scoring high in AD/HD symptoms would be more positive about the AD/HD children than low AD/HD parents.

(4) To examine the extent to which the associations between parental AD/HD symptoms, child AD/HD symptoms and parenting is moderated by the presence of child emotional symptoms and conduct problems and parental depressive and anti-social characteristics.

(5) To examine if the results found when mothers and fathers report on child AD/HD symptoms are replicated with teacher's report on child AD/HD symptoms.

(6) To examine whether the main effects and possible interactions are in the same direction for both mothers and fathers.

Chapter Five: Do Maternal and Paternal AD/HD Symptoms Affect Parenting and Empathic Responses to AD/HD Children Similarly?

5.1: Overview of Chapter 5

Chapter 5 presents the third study, which aimed to replicate and extend the findings of Studies 1 and 2. Study 3 extended the previous studies, as it included (1) mothers and fathers, (2) teacher's reports on child adjustment problems, (3) a measure of child-related-empathy and parental personal distress and (4) a measure of child conduct problems and parental anti-social characteristics. Mothers and fathers completed questionnaires and took part in a short interview (EE). The results provided partial support for the predictions made. Child AD/HD symptoms were associated with negative parenting for mothers and fathers, and increased maternal personal distress and EE. Similarly, maternal AD/HD symptoms were negatively associated with positive parenting and child-related empathy and were positively associated with personal distress. Once again, child AD/HD symptoms interacted with maternal AD/HD symptoms in decreasing maternal negative parenting, personal distress and emotional over-involvement with the child. In contrast, child AD/HD symptoms interacted with paternal AD/HD symptoms in increasing negative parenting. The chapter highlights differences between mothers and fathers in terms of parenting and other areas of parental functioning. Issues about comorbidity, implications for family functioning and methodological considerations are discussed. At the end of the chapter, new research questions that arise from the findings are highlighted and set the aims for Chapter 6.

5.2: Introduction to Study 3

Child AD/HD symptoms are consistently associated with negative parenting (DuPaul et al., 2001; Campbell et al., 1991). This finding was supported in the previous studies presented in this thesis. Indeed, maternal self-reports and observational data across developmental range (preschool and school age children) indicated that parents of children with AD/HD symptoms were more critical, expressed more negative comments toward their child and their parenting was characterised by inconsistent discipline, poor monitoring and physical punishment. Consistent results were also provided for adult AD/HD symptoms, which were found to be negatively associated with positive aspects of parenting. Surprisingly and most importantly, the results of the previous studies provided support for a significant interaction between

Child X Maternal AD/HD symptoms in predicting some aspects of parenting. Interestingly, for children with high levels of AD/HD symptoms, high levels of maternal AD/HD symptoms were associated with high levels of positive and affectionate and constructive parenting.

Given the significance of these findings, Study 3 builds on Studies 1 and 2 and extends them in important ways. This study reports data on child adjustment problems from three sources: mothers, fathers and teachers. These sources allow one to reduce any potential bias of self-report data. Also, the study has a larger sample and includes an assessment of fathers parenting. There are sound reasons to believe that AD/HD symptoms in fathers, as well as mothers, undermine parenting. Harvey et al., (2003) demonstrated that fathers' self-report symptoms of inattention and impulsivity caused problems in the way fathers interacted with their children and this interactional style did not change even after participating in a parent training programme. In a similar fashion, Arnold et al., (1997) revealed that AD/HD symptomatology in fathers reduced effective parenting by limiting patience and use of effective parenting practices.

The study also includes fathers because their parenting attitudes and behaviour might differ from that of mothers, and thus, creating opportunities for conflict and a chaotic family environment that undermines child adjustment (Cummings & Davis, 1994). A very recent study by Calzada, Eyberg, Rich and Querido (2004) examined differences between mothers and fathers in relation to parental functioning and interactions in a sample of 53 children with ODD. They found that mothers were more responsive during interactions with their children. However, during the interaction, children were more compliant with their father than with their mother. Also, they found higher stress levels in mothers than in fathers. They suggested that mothers may be more involved and spend more time with child care (McBride & Mills, 1993), and as a result, they are more likely to face situations where the child challenging behaviour occurs.

In another study, Stormshak, Speltz, DeKluen and Greenberg (1997), in a sample of pre-school boys, found that children interacted more with their mothers than with their fathers. Further, they found differences between mother-child and father-child interactions, in that, during father-child interactions, children displayed more negative and less positive behaviours. Also, other research has found that fathers are more

likely to play with their offspring rather than engage in caretaking functions (Lamb, 1977; 1981).

Furthermore, Baker and Heller (1996) reported additional differences between mothers and fathers of disruptive children in relation to childrearing practices and parenting stress. They found that based on self-report data, fathers were less indulgent, more authoritarian and more indifferent in comparison to mothers. Moreover, based on mothers' and fathers' reports, they found that, mothers were more concerned about child behaviour problems and they also had a greater need to ask for help to deal with child behaviour problems. Finally, mothers reported that the child problems had more negative consequences on their lives; they had more negative feelings about parenting and they reported more daily hassles in comparison to fathers. In addition, Baker and Heller (1996) found differences between mothers and fathers in the levels of stress they experienced as a result of the severity of the child's disruptive behaviour. When the child had sub-clinical disruptive behaviour, mothers had more child and parent related-stress in comparison to fathers. However, when the child had clinically significant disruptive behaviour, it was fathers who had more child and parent related stress. Overall, the studies suggest that there might be differences in the experiences of mothers and fathers of children with behavioural problems. Once these differences are elucidated, they can help inform interventions for families of children with behavioural problems.

Finally, Study 3 seeks to investigate the relationship between AD/HD symptomatology and empathy. Overall, empathy and any possible association with AD/HD have received little research attention. Few studies have explored the concept of empathy in children and adults with AD/HD, as most researchers investigate cognitive-behavioural aspects of the disorder or various treatment modalities for AD/HD (Lufi & Prish-Plass, 1995). There seems to be an inverse relationship between empathy and externalising disorders (Feshbach & Feshback, 1982; Miller & Eisenberg, 1988). However, the purpose of Study 3 was not to examine general empathy in parents, but empathy under a certain condition: when both child and parent have high amount of AD/HD symptoms. Research suggests that there is a link between empathy and positive behaviours, such as comforting and helping (Eisenberg & Fabes, 1990; Eisenberg, Fabes, Murphy, Karbon, Smith & Maszk, 1996). Batson (1991) suggested that individuals who are empathic towards another individual help more frequently, and this appears to be an altruistic attempt to increase the other's person well-being, rather than an egoistic attempt to increase

their own. Study 3 investigates if parents with AD/HD symptoms are more empathic toward their child with high AD/HD symptoms than parents without AD/HD symptoms. It is plausible to think that parents with AD/HD are better able to "read" and understand the child with AD/HD symptoms, perhaps, because they share similar experiences. Furthermore, parents with AD/HD may be better able to appreciate how their child feels, because they may have had similar feelings while trying to cope with growing up with the disorder.

Overall, Study 3 improves on the previous studies and its methodological limitations in a number of ways. The study examines the influences of both mothers and fathers, as there is some evidence that paternal parenting predict child disruptive behaviour above and beyond the contribution of the same maternal variables (DeKlyen, Biernbaum, Speltz & Greenberg, 1998). Further, AD/HD symptoms affect parenting and might be resistant to parent-training programmes (Arnold et al., 1997; Harvey et al., 2003). Also, the study addresses the limitations of self-report bias and uses the report of teachers. Finally, the study takes a further step and examines the role of empathy in families with AD/HD, as there is a paucity of research in this area.

5.3: Predictions

Based on the results from Studies 1 and 2, a number of predictions were made for Study 3:

5.3.1: Child AD/HD symptoms

Child AD/HD symptoms would be associated with increased negative parenting, parental personal distress, and EE. In contrast, child AD/HD symptoms would be associated with decreased positive parenting and child-related empathy. The effects are predicted to be the same for mothers and fathers, and this prediction is based on previous studies that have highlighted an association between child AD/HD and negative parenting by mothers and fathers (Stormshak et al., 2000; Keown & Woodward, 2002; Buhrmester et al., 1992). The effects are expected to be significant for both parental self-report and teacher's report on child AD/HD, and thus, further validating these effects.

5.3.2: Parental AD/HD symptoms

Parental AD/HD symptoms would be associated with increased negative parenting, parental personal distress, and EE. In contrast, parental AD/HD symptoms would be

associated with decreased positive aspects of parenting and child-related empathy. The effects would be the same for mothers and fathers, and this prediction is based on the studies by Harvey et al., (2003) and Arnold et al., (1997), which found negative effects of parental AD/HD symptoms on parenting. These studies were described in detail in Chapter 1 (Section 1.13). The effects are expected to be demonstrated when it is teachers reporting child AD/HD symptoms.

5.3.3: Child and parental AD/HD

Also, it is predicted that child and parental AD/HD symptoms would interact with each other in:

(a) Increasing positive parenting and/or decreasing negative parenting for mothers. This prediction is based on the two previous studies, which found that mothers with high levels of AD/HD symptoms appeared to be more positive for their children with high AD/HD symptoms. It is possible that differences will be documented between mothers and fathers because Harvey et al., (2003) found that fathers with AD/HD symptoms reported lax discipline towards their AD/HD child.

In addition, Study 3 predicts that there will be interactions in predicting (a) EE, (b) child-related empathy and (c) parental personal distress. However, the investigation of these variables is exploratory in nature and it is difficult to make any predictions about the direction of any possible interactions. Study 2 included the measure of EE but it did not reveal any significant interactions between child and maternal AD/HD symptoms in predicting EE. For empathy, it can be predicted that, at least for mothers, child and maternal AD/HD symptoms might interact in increasing empathy and decreasing distress and this hypothesis is based on the results from Studies 1 and 2 about parenting. In contrast, father's AD/HD symptoms might interact with child AD/HD symptoms in decreasing empathy and increasing personal distress, as some evidence suggests that male's relationship are more hierarchical and assertive (Gilligan, 1982).

5.4: Method

5.4.1: Participants

Parents completed a battery of questionnaires about their parenting and their child behaviour. The mean age of the children was M= 7.95 (SD=2.31). Table 5.1 displays the numbers of boys and girls for who only mothers completed questionnaires, only

fathers, and number of boys and girls for whom both parents completed questionnaires for their child.

Table 5.1: Number of Mothers, Fathers and Couples who Completed Questionnaires for their Child

	Boys	Girls
Mother only	128	98
Fathers only	21	14
Mother and fathers	34	17

Furthermore, 193 mothers and 41 fathers participated in the EE and 96 teachers completed questionnaires about the child AD/HD symptoms, conduct problems and emotional symptoms. Data were collected from schools in Hampshire (121 children), and schools in Wales (174 children). Data was also drawn from AD/HD support groups (17 children) to try and extend the range of possible AD/HD scores in the study.

A multivariate analysis was performed to investigate any differences in measures of psychopathology in the three groups: participants from AD/HD support groups, participants from Hampshire and participants from Wales. The independent variable was the group and the dependent variables were: child and parental AD/HD symptoms, child emotional symptoms/parental depressive characteristics and child conduct problems/parental anti-social characteristics, respectively.

Based on maternal reports, there were statistically significant differences between measures of psychopathology on the dependent variables: $F(12, 532)= 15.42$, $p < .001$. An post-hoc Tukey test revealed that the children from the support groups had significantly higher scores on AD/HD symptoms ($M= 42.53$, $SD= 7.92$), emotional symptoms ($M= 6.60$, $SD= 2.10$), conduct problems ($M= 5.33$, $SD= 1.88$) than children from Hampshire ($M= 15.43$, $SD=9.87$, $M= 1.57$, $SD= 1.92$ and $M= 1.42$, $SD= 1.63$ respectively) and Wales ($M= 12.85$, $SD= 10.02$ and $M= 1.57$, $SD= 1.92$, $M= 1.24$, $SD= 1.54$ respectively). Also, participants from the support groups had significantly higher scores on maternal AD/HD symptoms ($M= 15.50$, $SD= 13.40$) than participants from Hampshire ($M=8.58$, $SD= 6.02$) and Wales ($M= 7.59$, $SD= 5.77$).

Also, there was a significant difference in mothers in anti-social characteristics from the AD/HD support group ($M=29.57$, $SD=10.43$) and the Wales group ($M=22.68$,

SD=8.75). There were no significant differences between measures on psychopathology between the Hampshire and Wales groups.

Based on paternal reports, an analysis of variance revealed that there were significant differences between the measures studied $F(12, 152)= 8.94$, $p < .001$. Children from AD/HD support groups had more AD/HD symptoms (M= 41.45, SD= 8.06) than the groups from Hampshire (M= 13.02, SD= 8.62) and Wales (M= 10.13, SD= 4.59). Also, they had more emotional symptoms (M= 6.50, SD= 2.66) than groups from Hampshire (M= 1.81, SD= 1.89) and Wales (M= 1.04, SD= 1.31). Finally, they had more conduct problems (M= 5.50, SD= 1.64) than groups from Hampshire (M= 1.21, SD= 1.33) and Wales (M= .62, SD= .80). There were no significant differences in measures of child psychopathology between groups from Hampshire and Wales. Finally, there were no significant differences among the groups on measures of paternal psychopathology.

Based on teachers reports, a multivariate analysis of variance did not reveal any significant differences on child measures of psychopathology among the groups $F(6, 142)= 1.39$, $p = .222$.

The schools used for the study were of a mixed ethnic composition and social class. When parents had more than one child they were asked to complete questionnaires for the eldest. Sixty three percent of the mothers were married, 17 % were divorced, 4 % were widows, 4 % were cohabitating and 12 % were single. For fathers 90 % were married, 3 % were divorced, 4 % were cohabitating and 3 % were single.

5.4.2: Measures

5.4.2.1: Parental AD/HD symptoms

Parental AD/HD symptoms were measured with the Adult AD/HD Rating Scale (AARS; Barkley & Murphy, 1998; as in Studies 1 and 2). There is a copy of this questionnaire in Appendix 1.

5.4.2.2: Child AD/HD symptoms

Child AD/HD symptoms were measured with the AD/HD Rating Scale (DuPaul et al., 1997). The AD/HD Rating Scale is a measure of AD/HD in childhood. The items that compose the scale were taken from the Diagnostic and Statistical Manual of Mental Disorders (4^{th} ed.; American Psychiatric Association, 1994) criteria for diagnosing

AD/HD inattentive type and AD/HD hyperactive-impulsive type. Parents respond to18 items, ranging from (0=Never or rarely) to (3=Very often). Six or more items endorsed as often or very often on the even-numbered items (the criteria for AD/HD predominantly hyperactive/impulsive type e.g., "blurts out answer before questions have been completed") or six or more items endorsed on the odd-numbered items (the criteria for AD/HD predominantly inattentive type, (e.g., "fails to give attention to detail or makes careless mistakes in schoolwork") are considered significant. Both scales have good test-retest reliability (all *r*'s= .75 at a 4-week interval), and internal consistency with all coefficient alphas greater than .80 (DuPaul et al., 1997). There is a copy of this questionnaire in Appendix 12. Also, teachers reported on the child hyperactivity using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) hyperactivity scale. A range from 7 and 10 symptoms indicate abnormal levels. There is a copy of this questionnaire in Appendix 13.

5.4.2.3: Parental depressive characteristics

Parental depressive characteristics were measured with the General Health Questionnaire-12 item version (GHQ; Goldberg, 1978, 1982; as in Studies 1 and 2; Appendix 3). There is a copy of this questionnaire in Appendix 3.

5.4.2.4: Child emotional symptoms

Child emotional symptoms were measured with the emotional symptoms scale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) as described in Study 1). A range between 5 and 10 symptoms indicated abnormal levels of emotional symptoms. There is a copy of this questionnaire in Appendix 2.
Also, teachers reported on child emotional symptoms using the emotional symptoms scale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). A range between 6 and 10 symptoms indicated abnormal levels. There is a copy of this questionnaire in Appendix 13.

5.4.2.5: Parental anti-social characteristics

Parental anti-social characteristics were measured with the Aggression Questionnaire (AQ12; Bryant & Smith, 2001). The AQ consists of four factors: physical aggression ("given enough provocation, I may hit another person"), verbal aggression ("I often find myself disagreeing with people"), anger ("I flare up quickly but get over it quickly") and hostility ("at times I feel I have gotten a raw deal out of life"). Each subscale contains three items, answered on a 6-point scale, ranging from (1=Extremely uncharacteristic of me) to (6=Extremely characteristic of me). The

AQ12 is a valid and reliable measure (α's range from .88 to .92) of the four aggression sub-traits (Bryant & Smith, 2001). A cut-off of 42 symptoms and above was used in the present study to identify abnormal levels of conduct problems/anti-social characteristics (2SD above the mean from a normal population sample, Bryant & Smith, 2001). There is a copy of this questionnaire in Appendix 14.

5.4.2.6: Child conduct problems

Child conduct symptoms were measured with the conduct scale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; as in Study 1). A range between 4 and 10 symptoms indicated abnormal levels. There is a copy of this questionnaire in Appendix 2. Also, teachers reported on child conduct problems by using the conduct scale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). A range between 4 and 10 symptoms indicated abnormal levels of conduct problems. There is a copy of this questionnaire in Appendix 13.

5.4.2.7: Parenting

Parenting was measured using the Alabama Parenting Questionnaire (APQ; Shelton et al., 1996; as described in Study 1). There is a copy of this questionnaire in Appendix 4.

5.4.2.8: Parental empathy towards the child

Empathy was measured using an adapted version of the Interpersonal Reactivity Index (IRI; Davis, 1983). The IRI consists of four sub-scales: perspective taking, emotional concern, psychological distress and the fantasy scale. Each subscale contains seven items, answered on a 5-point scale, ranging from (0=Does not describe me well) to (4=Describes me well). High scores represent high empathy.

For the purpose of the present study, the empathic concern scale was reworded to measure parental emotional empathy disposition towards their child (e.g., "I am often quite touched by the things that I see happen to my child"). The perspective taking scale was reworded to measure parental cognitive disposition to consider things from the child's viewpoint (e.g., "I try to look at my child's side of disagreement before I made a decision"). The personal distress scale was reworded to measure a parental emotional disposition toward child-related distress in emotional situations (e.g., "When I see my child who badly needs help in an emergency, I go to pieces"). The fantasy involvement scale measures cognitive disposition toward imaginable involvement but it was dropped, as it was irrelevant to the purpose of the study. The

IRI has satisfactory test-retest reliability (r = .62 to.71), internal consistent (.71 to .77), and convergent and predictive validity (Davis, 1983). There is a copy of this questionnaire in Appendix 15.

5.4.2.9: Expressed Emotion (EE)

The quality of the emotional climate at home or Expressed Emotion (EE) was measured with the Five Minutes Speech Sample (FMSS; Magana, Goldstein, Karno, Miklowitz, Jenkins & Falloon, 1986). In Study 2, EE was measured with the PFMSS (Daley et al., 2003). However, the PFMSS is only appropriate for pre-school children. As Study 3 includes a sample of school age children, PFMSS was replaced by the FMSS, which had been used extensively as a measure of EE with older children (Peris & Hinshaw, 2003; McCarty & Weisz, 2002). The FMSS is an audiotaped measure in which parents speak for five minutes about their child without any interruption. During the five minutes, parents are asked to characterise the nature of their relationship with the child and also what the child is like. The coding system considers both the tone and content of the entire speech sample. Both criticism and emotional overinvolvement are assessed and each subscale is given an ordinal ranking (low, borderline, high).

The EE consists of the following components: initial statement (scored as positive, neutral, negative with higher scores represent a negative initial statement), relationship (scored as positive, neutral, negative with higher scores represent negative relationship), criticism (a frequency count), evidence of dissatisfaction with the child (present or absent), emotional display during the speech sample (present or absent), statements of attitude toward the child (a frequency count of comments that express strong feelings of positive emotion or a willingness to do anything for the child), evidence for self-sacrificing or overprotective behaviour or lack of objectivity (present or absent), excessive detail about the past (present or absent) and the number of positive remarks made about the child (Magana et al., 1986).

A high criticism rating is given if any of the following are present: a negative initial statement, a negative description of the relationship or one or more criticisms. It is worth noting that to qualify as a criticism, a remark must be particularly extreme in terms of both tone and content; milder expressions of frustration or descriptions of difficulty in the home are designated as evidence of dissatisfaction. To qualify as high within the emotional over-involvement domain, a parent must exhibit extreme levels of self-sacrificing behaviour, overprotective behaviour, a lack of objectivity, or break

down in tears in the speech sample. The presence of any of these elements merits high emotional over-involvement score (EOI). High EOI scores are also achieved if the parent displays any two of the following: excessive detail about the past, one or more statements of attitude and excessive praise (as defined by 5 or more positive remarks). In this study, two weeks code-recode intra-class reliability was satisfactory (ranging from r= .65 to r= .90).

5.4.3: Procedure

Ethical approval to conduct the study was received from the ethics committee, the School of Psychology, University of Southampton. Head teachers and leaders of AD/HD support groups were provided with information about the aim of the study. After giving their consent, packs of questionnaires together with free post envelopes were sent to the schools and members of the AD/HD support groups. Parents who agreed to participate in the EE were contacted over phone and they were asked to talk about their child for five minutes. The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) were sent to the teachers after receiving written consent from the parents. The confidentiality of the information provided by the participants was mentioned in the information letter. There is a copy of the information letter and consent form sent to the AD/HD support groups in Appendix 16 and 17, respectively, and an information letter and consent form sent to the parents from schools in Appendix 18 and 19, respectively.

5.5: Overview of the Analytical Strategy

The results are presented in the following sections: First, descriptive statistics and percentage of participants in the clinical range on measures of psychopathology are presented for (a) the child (based on reports from mothers, fathers and teachers) and (b) mothers and fathers (based on self-reports). Correlations for all measures of adjustment are presented. Overall, the analysis was conducted separately for mothers and fathers and the results are presented first for the mothers and second for the fathers. Second, factors analysis for measures of parenting was conducted in order to reduce the number of variables for subsequent analysis. Third, multiple regressions were conducted to examine the independent contribution of child and maternal (and paternal, respectively) AD/HD symptoms in predicting parenting. The analysis was repeated with teacher ratings on child AD/HD symptoms. Finally, the analysis was conducted again with father's rating on child AD/HD symptoms in the analysis of mother's parenting and vice versa. This analysis was conducted in order to reduce any self-rating bias, and it was based on the sample of 51 couples where both mother and father data were available. Fourth, the same analysis with the same structure of presentation was conducted for Expressed Emotion (EE) and again for Empathy (EM). For EE, the analysis was limited to mothers because only 41 fathers supplied EE Speech samples. For each dependent variable, multiple regressions were conducted again after controlling for child and parental emotional symptoms/depressive characteristics and conduct problems/anti-social characteristics, respectively. Hierarchical regressions were conducted to control for the effects of negative parenting in the analysis of positive parenting and vice versa.

5.6: Results

5.6.1: Descriptive Statistics and Correlations for Measures of Parenting

5.6.1.1: Scores, proportion of participants meeting cut-off for adjustment problems and correlation analyses

Table 5.2 displays descriptive statistics and proportion of children above the cut-off for AD/HD symptoms, conduct problems and emotional symptoms broken down by child sex based on reports from mothers, fathers and teachers. Mothers reported that boys had significantly more AD/HD, emotional and conduct problems than girls while fathers reported that boys had significantly more AD/HD symptoms than girls. There were no significant differences between teachers ratings of boys and girls AD/HD, conduct problems or emotional symptoms, however, a much higher percentage of boys were above levels of clinical concern for AD/HD than girls.

Table 5.2: Scores and Proportion of Children Meeting Cut-offs on Measures of Adjustment Problems Broken Down by Child Sex

Mother's ratings

	Boys (N=162)	Girls (N=115)	t
Child AD/HD symptoms			
Mean	17.62 (12.95)	12.73 (9.49)	
Range	0-53	0-53	3.44**
% abnormal (>12 DuPaul)	12.9	3.5	
Child AD/HD symptoms			
Mean	4.30 (3.05)	3.05 (2.54)	
Range	0-10	0-10	3.60***
% abnormal (7-10 SDQ)	24.7	11.3	
Child conduct problems			
Mean	1.77 (2.03)	1.27 (1.52)	
Range	0-10	0-8	2.25*
% abnormal (4-10 SDQ)	17.3	8.7	
Child emotional symptoms			
Mean	2.10 (2.48)	1.51 (1.90)	
Range	0-10	0-8	2.13*
% abnormal (5-10 SDQ)	13.6	7.8	

Father's Ratings

	Boys (N=57)	Girls (N=31)	t
Child AD/HD symptoms			
Mean	16.08 (11.97)	10.51 (6.40)	
Range	0-49	1-23	2.26*
% abnormal (>12 DuPaul)	12.3	0.0	
Child AD/HD symptoms			
Mean	3.61 (2.71)	2.46 (2.19)	
Range	0-10	0-8	1.93
% abnormal (7-10 SDQ)	10.7	7.1	p=0.06
Child conduct problems			
Mean	1.59 (1.91)	.86 (.97)	
Range	0-8	0-3	1.90
% abnormal (4-10 SDQ)	17.9	0.0	p=0.06
Child emotional symptoms			
Mean	2.18 (2.46)	1.36 (1.52)	
Range	0-10	0-6	1.62
% abnormal (5-10 SDQ)	16.1	7.1	

Teacher's ratings

	Boys (N=56)	Girls (N=40)	t
Child AD/HD symptoms			
Mean	3.70 (2.83)	3.02 (2.57)	
Range	0-10	0-9	1.19
% abnormal (7-10 SDQ)	19.6	12.5	
Child conduct problems			
Mean	1.20 (2.17)	.76 (1.53)	
Range	0-10	0-6	1.06
% abnormal (4-10 SDQ)	10.7	5.3	
Child emotional symptoms			
Mean	1.37 (1.82)	1.45 (2.29)	
Range	0-7	0-10	-0.19
% abnormal (6-10 SDQ)	2.0	6.1	

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

Table 5.3 displays descriptive statistics and proportion of mothers and fathers above levels of clinical concern on parental psychopathology measures broken down by child sex. For parental anti-social characteristics, the percentage of participants meeting the cut-off for clinical levels was based on 2SD above the mean from a general population sample (AQ; Bryant & Smith, 2001). This is because there is not a certain cut-off point for the Aggression Questionnaire (Bryant & Smith, 2001). The results revealed that there were no significant differences in parents of boys and girls on measures of psychopathology based on reports from mothers and fathers on child psychopathology.

Table 5.3: Scores and Proportion of Mothers and Fathers Meeting Cut-offs on Measures of Psychopathology Broken Down by Child Sex

	Mothers		
	Boys (N=162)	Girls (N=115)	t
AD/HD symptoms			
Mean	8.67 (7.39)	8.22 (5.65)	-0.38
Range	0-50	0-27	
% abnormal (>9 AARS)	1.85	2.61	
Anti-social characteristics			
Mean	23.62 (9.40)	24.05 (9.07)	-0.38
Range	12-55	12-48	
% abnormal (>42 AQ)	6.2	5.2	
Depressive characteristics			
Mean	.16 (.25)	.18 (.27)	-0.45
Range	0-1	0-1	
% abnormal (>3 GHQ)	57.5	60	
	Fathers		
	Boys (N=57)	Girls (N=31)	t
AD/HD symptoms			
Mean	7.87 (6.23)	7.15 (4.95)	0.52
Range	0-30	1-21	
% abnormal (>9 AARS)	1.75	0.0	
Anti-social characteristics			
Mean	28.89 (11.50)	25.11 (9.57)	1.49
Range	12-64	12-55	
% abnormal (>42 AQ12)	10.7	8.3	
Depressive characteristics			
Mean	.12 (.20)	.07 (.14)	1.13
Range	0-.75	0-.67	
% abnormal (>3 GHQ)	56.5	47.1	

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

Note: AD/HD = Attention Deficit Hyperactivity Disorder, AARS = Adult AD/HD Rating Scale, AQ12 = Aggression Questionnaire, GHQ = General Health Questionnaire (Score per item): Figures in parentheses represent standard deviations

5.6.1.2: Correlations between parent and child psychopathology

Table 5.4 displays the associations between child and maternal psychopathology based on reports from mothers, fathers, and teachers on child AD/HD symptoms, emotional symptoms and conduct problems. Based on maternal reports, there were significant correlations between child and maternal psychopathology. The correlations were in the expected direction. Child AD/HD symptoms were positively correlated with child emotional symptoms and conduct problems as well as with maternal AD/HD symptoms, depressive and anti-social characteristics. Child emotional symptoms were positively correlated with child conduct problems and maternal AD/HD symptoms and depressive and anti-social characteristics. Child conduct problems were positively correlated with maternal AD/HD symptoms and anti-social characteristics. Finally, maternal AD/HD symptoms were positively correlated with maternal depressive and anti-social characteristics as well as maternal depressive and anti-social characteristics.

When fathers reported on child psychopathology, there were significant correlations between child and maternal psychopathology. Child AD/HD symptoms were positively correlated with child emotional and conduct problems as were with maternal AD/HD symptoms and anti-social characteristics. There were significant positive correlations between child emotional symptoms and conduct problems as were with maternal AD/HD symptoms and anti-social characteristics. Also, there were significant positive correlations between child conduct problems and maternal AD/HD symptoms and anti-social characteristics. Finally, there was a significant positive correlation between maternal AD/HD symptoms and maternal anti-social characteristics. The non-significant correlations for the other measures of maternal psychopathology were probably due to the small sample size when fathers were the reporters on child psychopathology.

When teachers reported on child psychopathology, there were significant positive correlations between child AD/HD symptoms and child emotional and conduct problems, respectively. Also, child emotional symptoms were positively correlated with child conduct problems. Finally, maternal AD/HD symptoms were positively correlated with maternal depressive and anti-social characteristics as well as maternal depressive and anti-social characteristics.

Table 5.4: Correlations Between Child and Maternal Psychopathology Based on Mother, Fathers and Teacher's Ratings on Child Problems

Mother's Ratings

	Child AD/HD	Child emotional	Child conduct	Mother AD/HD	Mother depressive	Mother anti-social
1. Child AD/HD						
2. Child emotional	.50**					
3. Child conduct	.63**	.38**				
4. Mother AD/HD	.38**	.37**	.33**			
5. Mother depressive	.16**	.12*	.10	.33*		
6. Mother anti-social	.29**	.22**	30**	.44**	.26**	

Father's Ratings

	Child AD/HD	Child emotional	Child conduct	Mother AD/HD	Mother depressive	Mother anti-social
1. Child AD/HD						
2. Child emotional	.52**					
3. Child conduct	.44**	.64**				
4. Mother AD/HD	.53**	.53**	.49**			
5. Mother depressive	-.03	-.09	-.22	.26		
6. Mother anti-social	.48*	.31*	.30*	.46**	.09	

Teacher's Ratings

	Child AD/HD	Child emotional	Child conduct	Mother AD/HD	Mother depressive	Mother anti-social
1. Child AD/HD						
2. Child emotional	.26*					
3. Child conduct	.61**	.30**				
4. Mother AD/HD	.10	.13	.07			
5. Mother depressive	.13	-.08	.09	.33**		
6. Mother anti-social	.12	-.02	-.01	.44**	.26**	

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

Table 5.5 displays the associations between child and paternal psychopathology based on reports from fathers, mothers and teachers on child AD/HD symptoms, emotional symptoms and conduct problems. Based on paternal reports, there were significant positive associations between child and paternal psychopathology. Child AD/HD symptoms were positively correlated with child emotional and conduct problems as well as with paternal AD/HD symptoms. Child emotional symptoms were positively correlated with child conduct problems as well as with paternal AD/HD symptoms and depressive characteristics. Also, paternal AD/HD symptoms were correlated with paternal depressive and anti-social characteristics.

When mothers reported on child psychopathology, there were significant positive associations between child AD/HD symptoms with child emotional symptoms and conduct problems as were with paternal AD/HD symptoms. Child emotional symptoms were positively correlated with child conduct problems and paternal AD/HD symptoms. Also, there was a significant positive correlation between child conduct problems and paternal AD/HD symptoms. Finally, there was a significant positive correlation between paternal AD/HD symptoms and paternal anti-social characteristics.

Based on teacher reports on child psychopathology, there were significant positive correlations between child AD/HD symptoms and child emotional symptoms and conduct problems respectively as were child emotional symptoms with child conduct problems. Finally, there were significant positive correlations between paternal AD/HD symptoms and paternal depressive and anti-social characteristics respectively.

Table 5.5: Association Between Child and Paternal Psychopathology Based on Father, Mother and Teacher's Rating on Child Problems

	Father's Ratings					
	Child AD/HD	Child emotional	Child conduct	Father AD/HD	Father depressive	Father anti-social
1. Child AD/HD						
2. Child emotional	.56**					
3. Child conduct	.61**	.59**				
4. Father AD/HD	.29**	.38**	.17			
5. Father depressive	.05	.27*	.09	.27*		
6. Father anti-social	.08	.19	.17	.25*	.10	
	Mother's Ratings					
	Child AD/HD	Child emotional	Child conduct	Father AD/HD	Father depressive	Father anti-social
1. Child AD/HD						
2. Child emotional	.54**					
3. Child conduct	.70**	.56**				
4. Father AD/HD	.37*	.39**	.31*			
5. Father depressive	.20	.11	.27	.28		
6. Father anti-social	.24	.21	.28	.33*	.09	
	Teacher's Ratings					
	Child AD/HD	Child emotional	Child conduct	Father AD/HD	Father depressive	Father anti-social
1. Child AD/HD						
2. Child emotional	.26*					
3. Child conduct	.61**	.30**				
4. Father AD/HD	-.13	.20	-.08			
5. Father depressive	-.33	-.17	-.19	.27*		
6. Father anti-social	-.09	.22	-.18	.25*	.10	

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

Based on teachers' reports, teacher's report on child AD/HD symptoms were correlated with teacher report on child conduct problems (r= .61, p < .01) and emotional symptoms (r= .26, p < .01). Also, significant and large correlations were found between mothers and fathers on child adjustment problems based on the sample of 51 couples (for AD/HD, r= .85, p <. 01; for conduct problems, r= .59, p < .01; for emotional symptoms, r= .56, p < .01). These high correlations may indicate that this sample had low levels of psychological distress as previous evidence suggests that distressed families yield greater discrepancies between parent's reports (Christensen, Margolin & Sullaway, 1992).

Furthermore, there were significant correlations between mothers and fathers reports on child AD/HD (r =.87, p < .01), child conduct problems (r = .82, p < .01) and child emotional symptoms (r = .81, p < .01). Teachers' reports on child AD/HD were correlated with maternal reports on child AD/HD symptoms (r = .53, p < .01), and fathers reports on child AD/HD symptoms (r = .44, p < .01). Teachers reports of child conduct problems were correlated positively with maternal reports of child conduct problems (r = .50, p < .01). Finally, teachers reports of child emotional symptoms were positively correlated with maternal (r = .41, p < .01) and paternal (r = .41, p < .01) reports of child emotional symptoms.

5.6.1.3: Correlations and factor analysis for measures of parenting

Table 5.6 displays correlations among components of parenting for both mothers and fathers separately. Overall, correlations between components of parenting were significant. For mothers, involvement was positively correlated with positive parenting, and it correlated negatively with poor monitoring, inconsistent discipline and physical punishment. Positive parenting was negatively correlated with inconsistent discipline. Poor monitoring was positively correlated with inconsistent discipline. Also, physical punishment and inconsistent discipline were positively correlated. There were significant correlations between components of parenting and measures of child and maternal psychopathology. Involvement was negatively correlated with child AD/HD and conduct problems and with maternal AD/HD symptoms, depressive and anti-social characteristics. Poor monitoring was positively correlated with child AD/HD symptoms and conduct problems. Inconsistent discipline was positively correlated with child conduct problems and maternal AD/HD symptoms and anti-social characteristics. Physical punishment was positively correlated with child conduct problems and maternal anti-social characteristics.

For fathers, involvement was positively correlated with positive parenting, and it correlated negatively with inconsistent discipline and physical punishment. Inconsistent discipline was positively correlated with physical punishment. Also, involvement was positively correlated with child emotional and conduct problems and paternal anti-social characteristics. Poor monitoring and inconsistent discipline were each positively correlated with child conduct problems and paternal AD/HD and child AD/HD symptoms respectively. Finally, physical punishment was positively correlated with child AD/HD symptoms and conduct problems.

Table 5.6: Associations Between Components of Parenting and Measures of Psychopathology for Mothers and Fathers

Mothers

	Involvement	Positive Parenting	Poor Monitoring	Inconsistent Discipline	Physical Punishment
1. Involvement					
2. Positive parenting	.43**				
3. Poor monitoring	-.16**	-.02			
4. Inconsistent discipline	-.25**	-.16**	.25**		
5. Physical punishment	-.12*	-.02	.09	.13*	
6. Child AD/HD	-.22**	-.04	.36**	.26**	.11
7. Child emotional	-.03	.09	.14*	.08	-.04
8. Child conduct	-.25**	.02	.39**	.29**	.23**
9. Mother AD/HD	-.28**	-.09	.10	.26**	.04
10. Mother depressive	-.21**	-.04	.08	.10	.03
11. Mother anti-social	-.17**	.06	.10	.17**	.22**

Fathers

	Involvement	Positive Parenting	Poor Monitoring	Inconsistent Discipline	Physical Punishment
1. Involvement					
2. Positive parenting	.62**				
3. Poor monitoring	-.12	-.05			
4. Inconsistent discipline	-.31**	-.17	.18		
5. Physical punishment	-.33**	-.09	.06	.32**	
6. Child AD/HD	-.18	.07	.32**	.22*	.24*
7. Child emotional	-.33**	.09	.15	.17	.16
8. Child conduct	-.29**	-.02	.22*	.27*	.26*
9. Father AD/HD	-.15	-.02	.22*	.24*	.05
10. Father depressive	.03	-.01	.02	-.09	-.04
11. Father anti-social	-.27*	-.11	.16	.18	.18

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

Principal components analysis was conducted on the parenting scales for mothers and fathers separately. For mothers, factors were rotated to a varimax solution with orthogonal rotation. Two factors emerged explaining 56 percent of the total variance and the structure was the same as in Study 1. Positive parenting and involvement loaded on the first factor (Positive Involved Parenting – PIP). This factor accounted for the 30 percent of the total variance. Poor monitoring, inconsistent discipline and physical punishment loaded on the second factor (Negative Parenting – NP). This factor accounted for the 26 percent of the total variance.

For fathers, the same factors emerged. Positive parenting and involvement loaded on the first factor (Positive Involved Parenting – PIP). This factor accounted for the 34 percent of the total variance. Poor monitoring, inconsistent discipline and physical punishment loaded on the second factor (Negative Parenting – NP). This factor accounted for the 28 percent of the total variance. The factors accounted for the 62 percent of the total variance (See Table 5.7).

Table 5.7: Factor Matrix for Components of Parenting for Mothers and Fathers

	Mothers	
	PIP	NP
1. Involvement	**.786**	-.231
2. Positive parenting	**.866**	.096
3. Poor monitoring	-.004	**.738**
4. Inconsistent discipline	-.353	**.611**
5. Physical punishment	.013	**.583**
	Fathers	
	PIP	NP
1. Involvement	**.854**	-.282
2. Positive parenting	**.886**	.032
3. Poor monitoring	.150	**.669**
4. Inconsistent discipline	-.232	**.725**
5. Physical punishment	-.311	**.590**

Table 5.8 displays correlations between the two factors and measures of child and parental psychopathology. Maternal Positive Involved Parenting was negatively correlated with maternal AD/HD symptoms and maternal depressive characteristics. The other correlations were non significant. Also, maternal Negative Parenting was positively correlated with child AD/HD symptoms, child conduct problems as were with maternal AD/HD symptoms and maternal anti-social characteristics.

For fathers, there were not significant correlations between Positive Involved Parenting and measures of child and father psychopathology. Negative Parenting was positively correlated with child AD/HD symptoms, child emotional symptoms and child conduct problems. Significant correlations were also found between Negative Parenting and father psychopathology. Negative Parenting was positively correlated with father AD/HD symptoms and father anti-social characteristics.

Table 5.8: Correlations Among the Factors and Parental and Child Psychopathology

Mothers

	Child AD/HD	Child Emotional	Child Conduct	Maternal AD/HD	Maternal Depressive	Maternal Anti-social
1. PIP	-.12	.03	-.09	-.22**	-.13*	-.05
2. NP	.39**	.10	.47**	.18**	.10	.26**

Fathers

	Child AD/HD	Child Emotional	Child Conduct	Paternal AD/HD	Paternal Depressive	Paternal Anti-social
1. PIP	.01	-.13	-.13	-.03	.03	-.17
2. NP	.42**	.26*	.37**	.29**	-.05	.26*

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

5.6.2: The impact of AD/HD on Mothers Parenting

5.6.2.1: Effects of child and maternal AD/HD symptoms on PIP and NP based on mother's report on child AD/HD

To examine the independent contribution of child and maternal AD/HD symptoms as well as their interaction, two separate multiple regressions were conducted entering child and maternal AD/HD symptoms and a term representing the interaction between the two. The interaction term was calculated by multiplying together the standardized values for maternal and child AD/HD symptoms. Scores for PIP and NP were the outcome variables. All factors were entered into the model in one single step.

For PIP, the overall model was significant $F(3, 265)= 4.70$, $p < .01$ (Adjusted $R^2= .04$). There was a significant negative association between maternal AD/HD symptoms ($\beta= -.21$, $p < .01$) and PIP (Figure 5.1). PIP decreased as maternal AD/HD symptoms increased. After controlling for maternal and child emotional symptoms/depressive characteristics and conduct problems/anti-social characteristics, respectively this effect remained significant with a slight increase in the β coefficient ($\beta= -.25$, $p < .01$). To control for the effects of Negative Parenting, hierarchical regressions were used. Negative Parenting was entered in the first step, child and maternal AD/HD symptoms in the second step and the interaction between child and maternal AD/HD symptoms in the third step. The results revealed that the interaction was not significant ($\beta= .04$, ns).

As in the previous studies, for ease of interpretation, participants were divided on the basis of low, medium and high maternal AD/HD symptoms (low group = below the 33 percentile, medium = between the 33 and 66 percentile, and high group = above the 66 percentile). Figure 5.1 shows that, for the group with low maternal AD/HD symptoms, there were a positive slope and a positive association between PIP and child AD/HD. For the medium and high groups, there was a negative slope and PIP decreased as child AD/HD symptoms increased. Therefore, this interaction was non-significant.

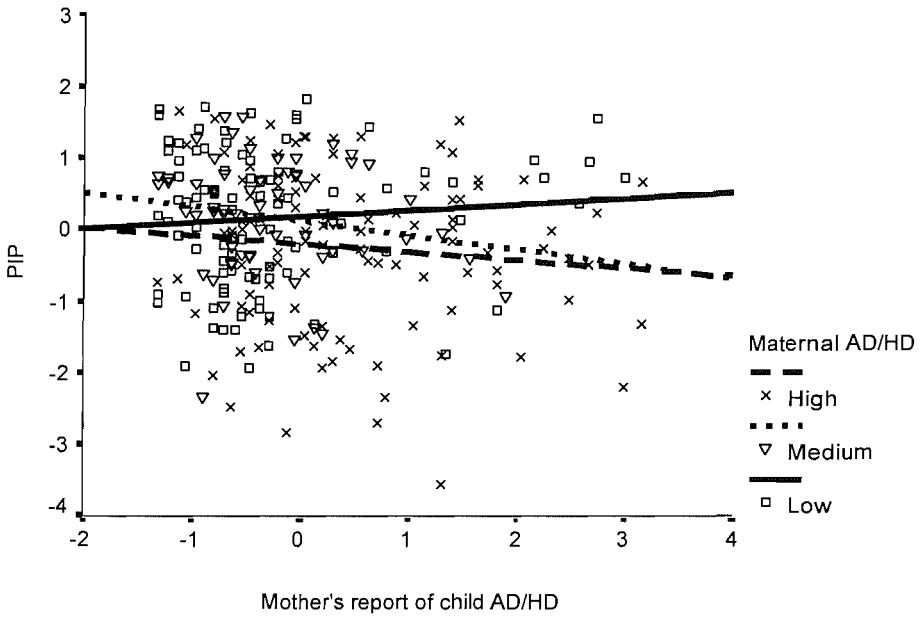


Fig 5.1: Association between child and maternal AD/HD on PIP

Note: PIP = Positive Involved Parenting

For NP, the model was highly significant $\underline{F}(3, 265)= 18.68$, $\underline{p} < .001$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2= .17$). This effect was carried by a significant positive association between child AD/HD symptoms ($\beta= .38$, $\underline{p} < .001$) and NP and between the interaction term ($\beta= -.16$, $\underline{p} < .01$) and NP. These effects were represented graphically in Figure 5.2. This interaction remained significant after controlling for other factors with a slight increase in the β coefficient ($\beta= -.18$, $\underline{p} < .01$). The effect of child AD/HD on NP remained significant ($\beta= .19$, $\underline{p} < .01$). To control for the effects of Positive Involved Parenting, hierarchical regressions were used. Positive Involved Parenting was entered in the first step, child and maternal AD/HD symptoms in the second step and the interaction between child and maternal AD/HD symptoms in the third step. The results revealed that the interaction was again significant ($\beta= -.16$, $\underline{p} < .01$).

From the graph, one can see that, for the low maternal AD/HD symptoms group, there was a positive slope and a positive association between NP and child AD/HD symptoms. NP increased as the levels of child AD/HD symptoms increased. For the medium and high groups, the lines almost coincide with each other, especially as child AD/HD increased. Again, there is a positive slope between NP and child AD/HD but it is less steep and it is the low group that had the highest levels of NP.

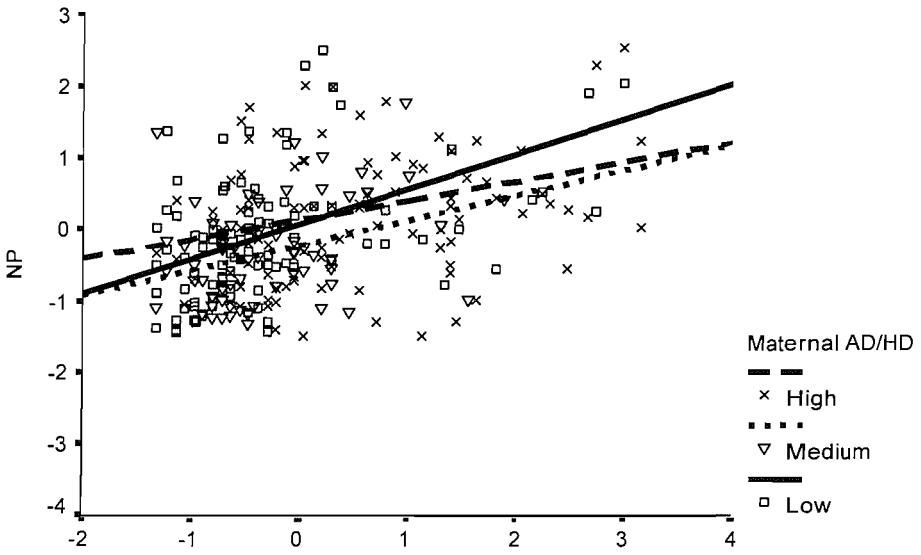


Fig 5.2: Association between child and maternal AD/HD on NP

Note: NP = Negative Parenting

5.6.2.2: Effects of child and maternal AD/HD symptoms on PIP and NP based on teacher's report on child AD/HD

For PIP, the overall model was significant $F(3, 84)= 6.12$, $p < .01$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2= .15$). This effect was carried by a significant negative association between maternal AD/HD symptoms ($\beta= -.41$, $p < .001$) and PIP. PIP decreased as maternal AD/HD symptoms increased. This effect was represented graphically in Figure 5.3. The effect remained significant after controlling for other factors with an increase in the β coefficient ($\beta= -.55$, $p < .01$). To control for the effects of Negative Parenting, hierarchical regressions were used. Negative Parenting was entered in the first step, child and maternal AD/HD symptoms in the second step and the interaction between child and maternal AD/HD symptoms in the third step. The results revealed that the interaction was again non significant ($\beta= -.02$, ns). Figure 5.3 shows that, when teachers reported on child AD/HD symptoms, for the low and medium maternal AD/HD symptoms groups, there were a slight positive slope whereas, for the high maternal AD/HD symptoms group, the line was almost flat implying that PIP was not affected by the severity of child AD/HD symptoms.

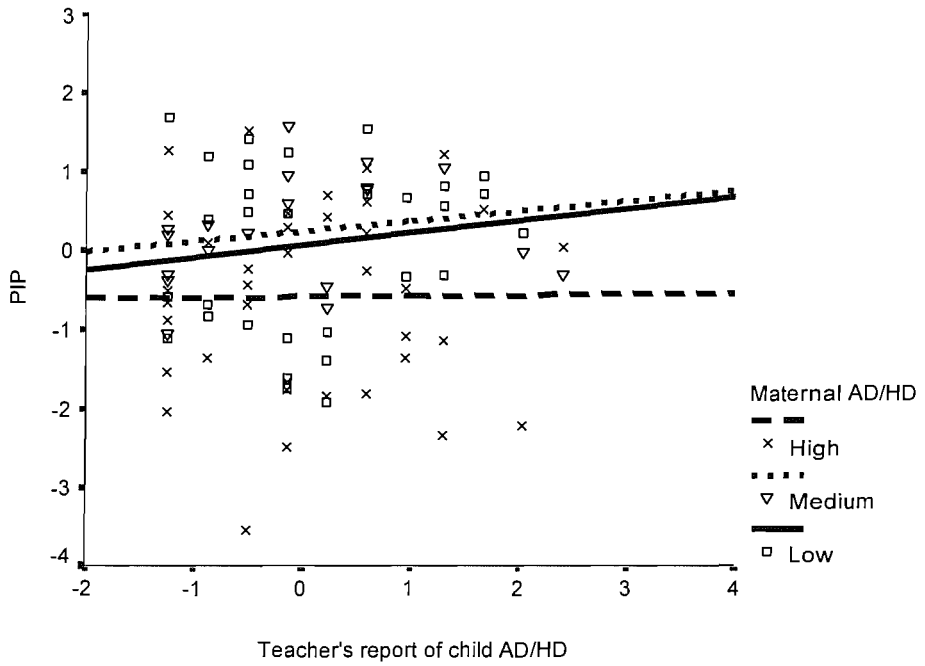


Fig 5.3: Association between child and maternal AD/HD on PIP

For NP, the model was highly significant $\underline{F}(3, 84)= 8.10$, $\underline{p} < .001$ (Adjusted $R^2= .20$) There were a significant positive association between child AD/HD symptoms ($\beta= .38$, $\underline{p} < .001$) and NP and between maternal AD/HD symptoms ($\beta= .25$, $\underline{p} < .01$) and NP. The interaction was non significant ($\beta= -.03$, ns) but it was consistent with the analysis conducted for maternal reports on child AD/HD. To control for the effects of Positive Involved Parenting, hierarchical regressions were used. Positive Involved Parenting was entered in the first step, child and maternal AD/HD symptoms in the second step and the interaction between child and maternal AD/HD symptoms in the third step. The results revealed that the interaction was non significant ($\beta= -.03$, ns). Figure 5.4 shows that once again it was the low group that had the most NP. After controlling for other factors, the effects of child and maternal AD/HD symptoms on NP were not significant ($\beta= .23$, ns; $\beta= .16$, ns; respectively).

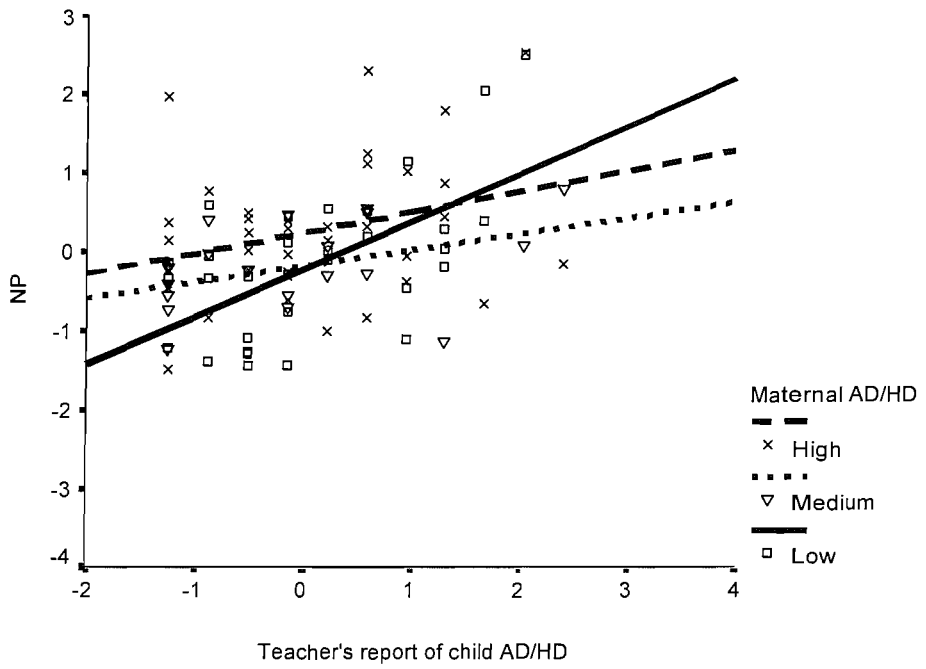


Fig 5.4: Association between child and maternal AD/HD on NP

5.6.2.3: Effects of child and maternal AD/HD symptoms on PIP and NP based on father's report on child AD/HD

For PIP, there were no significant main effects or interactions $\underline{F}(3, 44)= .95$, $\underline{p} > .10$. Also, for NP there were no significant main effects or interactions $\underline{F}(3, 44)= .86$, $\underline{p} > .10$.

5.6.3: The Impact of AD/HD on Fathers Parenting

5.6.3.1: Effects of child and paternal AD/HD symptoms on PIP and NP based on father's report on child AD/HD

For PIP, there were no significant main effects or interactions $F(3, 79)= .05$, $p > .10$. For NP, the model was highly significant $F(3, 79)= 10.57$, $p < .001$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2= .26$). This effect was carried by a significant positive association between child AD/HD symptoms ($\beta= .36$, $p < .01$) and NP and between the interaction term ($\beta= .32$, $p < .01$) and NP (Figure 5.5). The interaction remained significant after controlling for other factors ($\beta= .27$, $p < .05$). Also, the effect of child AD/HD on parenting remained significant with an increase in the β coefficient ($\beta= .40$, $p < .01$).

To control for the effects of Positive Involved Parenting, hierarchical regressions were used. Positive Involved Parenting was entered in the first step, child and paternal AD/HD symptoms in the second step and the interaction between child and paternal AD/HD symptoms in the third step. The results revealed that the interaction was again significant ($\beta= .32$, $p < .001$).

Participants were divided on the basis of low, medium and high paternal AD/HD symptoms in the same way as it was conducted for mothers. Interestingly, for the low paternal AD/HD symptoms group, the line was essentially flat and it seemed that for the low AD/HD group NP was not influenced by the severity of child AD/HD symptoms. The lines of the medium and high AD/HD groups had exactly the same pattern and almost coincided with each other. For the medium and high groups, there was a positive slope and a positive association between NP and child AD/HD. For these two groups, NP increased as levels of child AD/HD symptoms increased.

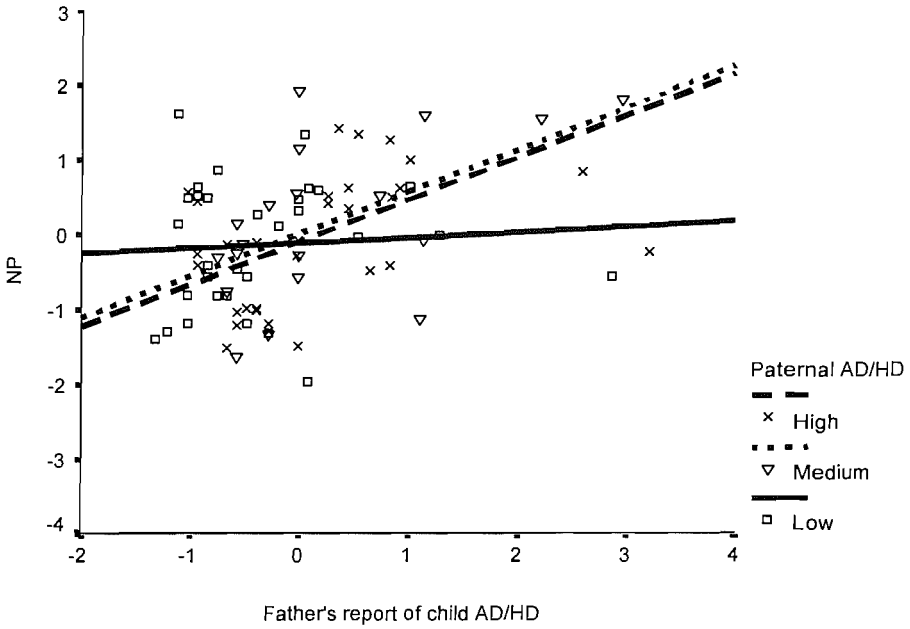


Fig 5.5: Association between child and paternal AD/HD on NP

5.6.3.2: Effects of child and paternal AD/HD symptoms on PIP and NP based on teacher's report on child AD/HD

For PIP, there were no significant main effects or interactions $F(3, 31) = .16$, $p > .10$. For NP, there was a significant positive association between child AD/HD symptoms ($\beta = .37$, $p < .05$) and NP (Figure 5.6). NP increased as child AD/HD symptoms increased. This effect was non significant after controlling for other factors ($\beta = .32$, ns). To control for the effects of Positive Involved Parenting hierarchical regressions were used. Positive Involved Parenting was entered in the first step, child and paternal AD/HD symptoms in the second step and the interaction between child and paternal AD/HD symptoms in the third step. The results revealed that the interaction was non significant ($\beta = .02$, ns). However, the lines were different from the ones plotted when the father reported on child AD/HD symptoms. Figure 5.6 reveals that, it was the medium paternal AD/HD symptoms group, which had the highest levels of NP as the child AD/HD symptoms increased.

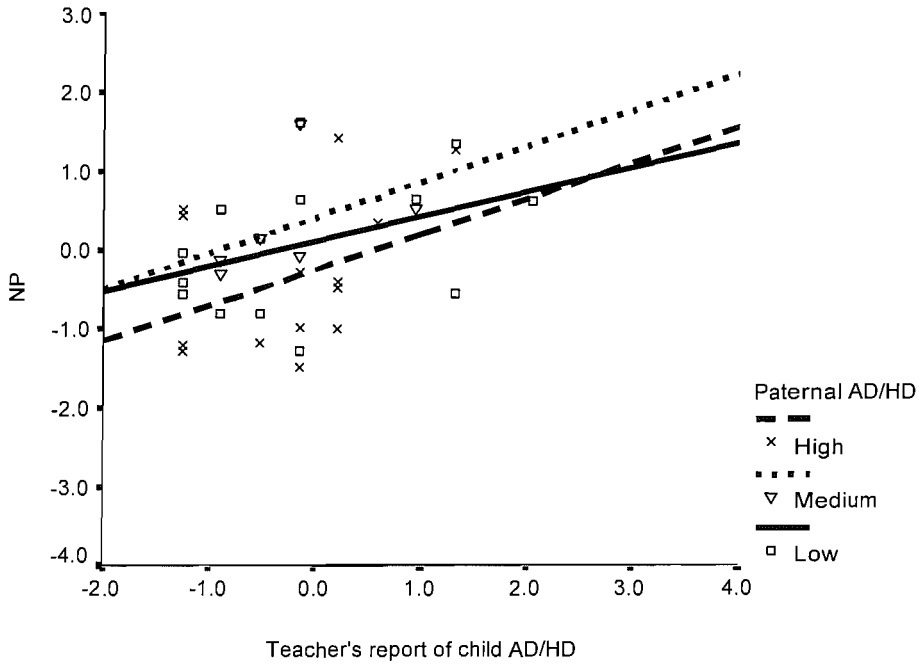


Fig 5.6: Association between child and paternal AD/HD on NP

5.6.3.3: Effects of child and paternal AD/HD symptoms on PIP and NP based on mother's report on child AD/HD

For PIP, there were no significant main effects or interactions $F(3, 44)= .30$, $p > .10$. For NP, the model was highly significant $F(3, 44)= 7.56$, $p < .001$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2= .30$). This effect was carried by a significant positive association between child AD/HD symptoms ($\beta= .41$, $p < .01$) and NP (Figure 5.7). After controlling for other factors the effect remained significant ($\beta= .36$, $p < .05$). To control for the effects of Positive Involved Parenting, hierarchical regressions were used. Positive Involved Parenting was entered in the first step, child and paternal AD/HD symptoms in the second step and the interaction between child and paternal AD/HD symptoms in the third step. The interaction remained marginally significant ($\beta= .28$, $p= .059$). Again, there were differences between Figure 5.7 and the ones when fathers and teachers were the reporters. This time it seems that there is an almost flat line for the medium group, whereas a positive slope for the high and low group, with the low group having the highest levels of NP. The different pattern when mother reported on child AD/HD symptoms maybe due to the small sample size or the result of reporting bias.

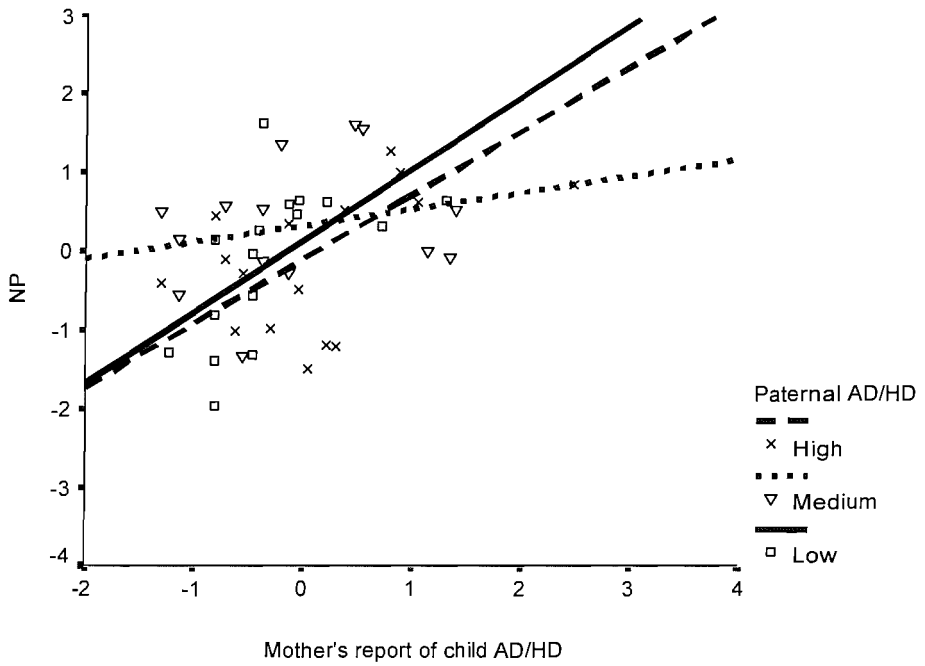


Fig 5.7: Association between child and paternal AD/HD on NP

5.6.4: The Impact of AD/HD on Mothers EE

5.6.4.1: Descriptive statistics and correlation analysis

Another aim of the study was to investigate the association between AD/HD symptoms and EE. The analysis for EE, as mentioned earlier, was conducted only for mothers. The sample size for fathers was small (41 fathers) and there was not enough statistical power to conduct the analysis. Table 5.9 displays descriptive statistics for components of EE for the whole sample broken down by child sex. The results revealed that mothers were more critical towards boys in comparison to girls. Also, mothers expressed more positive remarks for girls than for boys.

Table 5.9: Descriptive Statistics for the Whole Sample Broken Down by Child Sex

	Boys (N=109)	**Girls (N=84)**	**t**
1. Initial Statement			
Mean	1.73 (.50)	1.69 (.49)	0.60
Range	1-3	1-3	
2. Relationship			
Mean	1.73 (.56)	1.59 (.56)	1.71
Range	1-3	1-3	
3. Criticism			
Mean	.49 (1.15)	.08 (.35)	3.09**
Range	0-5	0-2	
4. Dissatisfaction			
Mean	.33 (.47)	.25 (.51)	1.13
Range	0-1	0-1	
5. Sacrifice			
Mean	.27 (.44)	.26 (.44)	0.06
Range	0-1	0-1	
6. Emotional Display			
Mean	.02 (.13)	.04 (.19)	-0.75
Range	0-1	0-1	
7. Details about the past			
Mean	.03 (.16)	.04 (.19)	-0.32
Range	0-1	0-1	
8. Positive Remarks			
Mean	2.87 (2.41)	3.58 (2.60)	-1.97*
Range	0-10	0-13	
9. Statement of Attitude			
Mean	.28 (.65)	.40(1.01)	-1.08
Range	0-3	0-5	

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

Table 5.10 displays correlations between components of EE with measures of child and mother psychopathology. Correlations among components of EE were in the expected direction. Initial statement was positively correlated with relationship, criticism and negatively with positive remarks. Relationship was positively correlated with criticism, dissatisfaction, emotional display and it correlated negatively with positive remarks. Criticism was positively associated with dissatisfaction, emotional display and negatively with positive remarks. Dissatisfaction was positively correlated with emotional display and statement of attitude. Emotional display was positively correlated with statement of attitude. Finally, positive remarks were positively correlated with statement of attitude.

Components of EE were correlated with child and maternal psychopathology. Initial statement was positively correlated with child conduct problems. Relationship was positively correlated with child AD/HD symptoms, conduct and emotional symptoms as they were with maternal AD/HD symptoms and anti-social characteristics. Criticism was positively correlated with child AD/HD symptoms, conduct and emotional symptoms as they were with maternal AD/HD symptoms and anti-social characteristics. Dissatisfaction was positively correlated with child AD/HD symptoms and conduct problems and with maternal anti-social characteristics. Details about the past were negatively correlated with maternal anti-social characteristics. Positive remarks were negatively correlated with child AD/HD symptoms, conduct problems and emotional symptoms.

Table 5.10: Correlations Between Components of EE and Measures of Child and Maternal Psychopathology

	1	2	3	4	5	6	7	8	9
1. Initial Statement									
2. Relationship	.15*								
3. Criticism	.22**	.35**							
4. Dissatisfaction	.11	.24**	.18*						
5. Sacrifice	-.04	-.03	-.10	.05					
6. Emotional Display	.09	.15*	.16*	.24**	-.02				
7. Details about past	-.02	-.02	-.06	-.11	.03	-.03			
8. Positive remarks	-.29**	-.23**	-.22**	-.12	.05	-.06	.04		
9. Statement of attitude	.08	.08	.05	.21**	-.03	.17*	.01	.18*	
10. Child AD/HD	.10	.28**	.45**	.32**	.08	.12	-.07	-.26**	-.06
11. Child emotional	.12	.17*	.54**	.15	-.03	-.11	-.08	-.17*	-.05
12. Child conduct	.16*	.35**	.50**	.32**	-.03	.12	-.09	-.27**	.08
13. Mother AD/HD	.12	.27**	.37**	.04	-.13	-.02	-.04	-.14	.02
14. Mother depression	-.04	-.01	-.02	-.04	-.12	-.07	-.07	.04	02
15. Mother anti-social	.03	.25**	.20**	.15*	.08	.01	-.16*	-.07	.08

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

To reduce the number of components of EE, principal components analysis was used with factors rotated to a varimax orthogonal solution. The eigenvalues from the unrotated solution yielded an interpretable plot suggesting two factors should be extracted from the item-correlation matrix. Initial statement, relationship, criticism and lack of positive remarks loaded on the first factor (Criticism - CRIT). This factor accounted for the 21 percent of the total variance. Dissatisfaction, emotional display and statement of attitude were loaded on the second factor (Emotional Over-Involvement - EOI). This factor accounted for the 13 percent of the total variance. No other item to factor loading exceeded .3.The factors accounted for 34 percent of the total variance. The factor loadings are displayed in Table 5.11.

Table 5.11: Factor Matrix for Components of EE

	CRIT	EOI
1. Initial statement	**.555**	.160
2. Relationship	**.521**	.393
3. Criticism	**.588**	.329
4. Dissatisfaction	.157	**.662**
5. Sacrifice	-.175	.014
6. Emotional display	.075	**.610**
7. Details about the past	-.073	-.137
8. Positive remarks	**-.777**	.098
9. Statement of Attitude	-.317	**.698**

Table 5.12 displays the associations between CRIT and EOI and measures of child and maternal psychopathology. CRIT was positively correlated with maternal AD/HD symptoms and with maternal anti-social characteristics. Also, CRIT was positively correlated with child AD/HD symptoms, child conduct problems and child emotional symptoms. EOI was positively correlated with maternal AD/HD symptoms and maternal anti-social characteristics. Also, EOI was positively correlated with child AD/HD symptoms and child conduct problems.

Table 5.12: Correlations Among the Factors and Child and Maternal Psychopathology

	Child AD/HD	Child Emotional	Child Conduct	Maternal AD/HD	Maternal Depressive	Maternal Anti-social
1. CRIT	.38**	.37**	.46**	.29**	-.03	.15*
2. EOI	.23**	.07	.24**	.15*	-.03	.18*

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

5.6.4.2: Effects of child and maternal AD/HD symptoms on CRIT and EOI based on mother's report on child AD/HD

To examine the independent contribution of child AD/HD symptoms and maternal AD/HD symptoms as well as their interaction, two separate multiple regressions were conducted. CRIT and EOI were the outcome variables. All variables were entered into the model in one single step. For CRIT, the overall model was highly significant $F(3, 179)= 13.11$, $p < .001$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2= .17$). There was a significant positive association between child AD/HD symptoms ($\beta= .32$, $p < .001$) and CRIT. CRIT increased as child AD/HD symptoms increased. This effect was represented graphically in Figure 5.8. The effect was non-significant after controlling for other factors ($\beta= .01$, ns). Figure 5.8 shows that, it was the group with high maternal AD/HD symptoms, which expressed more CRIT for the child with high AD/HD symptoms.

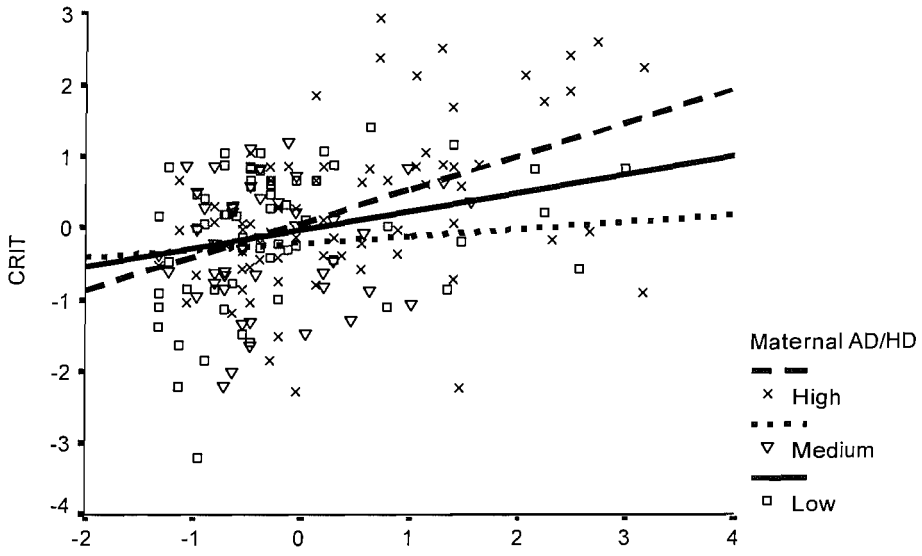


Fig 5.8: Association between child and maternal AD/HD on CRIT

Note: CRIT = Criticism

For EOI, the model was again highly significant $F(3, 179)= 8.48$, $p < .001$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2= .11$). There was a significant positive association between child AD/HD symptoms ($\beta= .33$, $p < .001$) and EOI. EOI increased as child AD/HD symptoms increased. This effect was represented graphically in Figure 5.9. The effect was significant after controlling for other factors ($\beta= .29$, $p < .01$). Figure 5.9 shows that, for all groups, there was a positive slope and a positive association between EOI and child AD/HD symptoms.

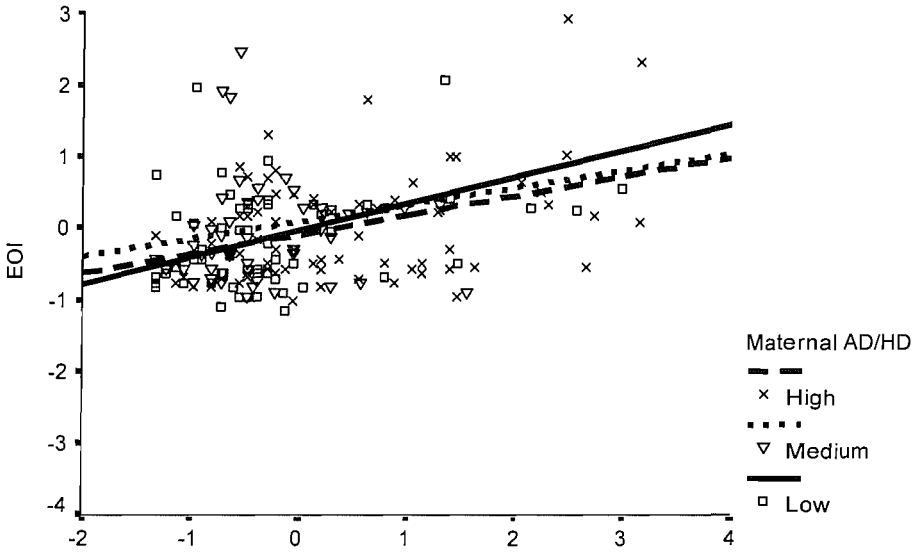


Fig 5.9: Association between child and maternal AD/HD on EOI

Note: EOI = Emotional Over-involvement

5.6.4.3: Effects of child and maternal AD/HD on CRIT and EOI based on teacher's report on child AD/HD

When teacher's reported on child AD/HD symptoms, there were no significant main effects or interactions neither for CRIT $F(3, 61)= 1.42$, $p > .25$ nor for EOI, $F(3, 61)= .75$, $p > .10$.

5.6.4.4: Effects of child and maternal AD/HD symptoms on CRIT and EOI based on father's report on child AD/HD

For CRIT, the overall model was significant $F(3, 31)= 3.26$, $p < .05$ but there were no significant main effects or interactions. For EOI, the model was highly significant $F(3, 31)= 6.67$, $p < .01$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2= .33$). This effect was carried by a significant positive association between the interaction term ($\beta= .61$, $p < .05$) and EOI (Figure 5.10). This interaction was non significant after controlling for other factors ($\beta= .41$, ns). Figure 5.10 shows that, for the medium maternal AD/HD symptoms group, the line was essentially flat. For the low and high groups, there was a positive slope and a positive association between EOI and child AD/HD symptoms. However, the slope was larger for the low maternal AD/HD group, and this group had the highest levels of EOI as child AD/HD symptoms increased.

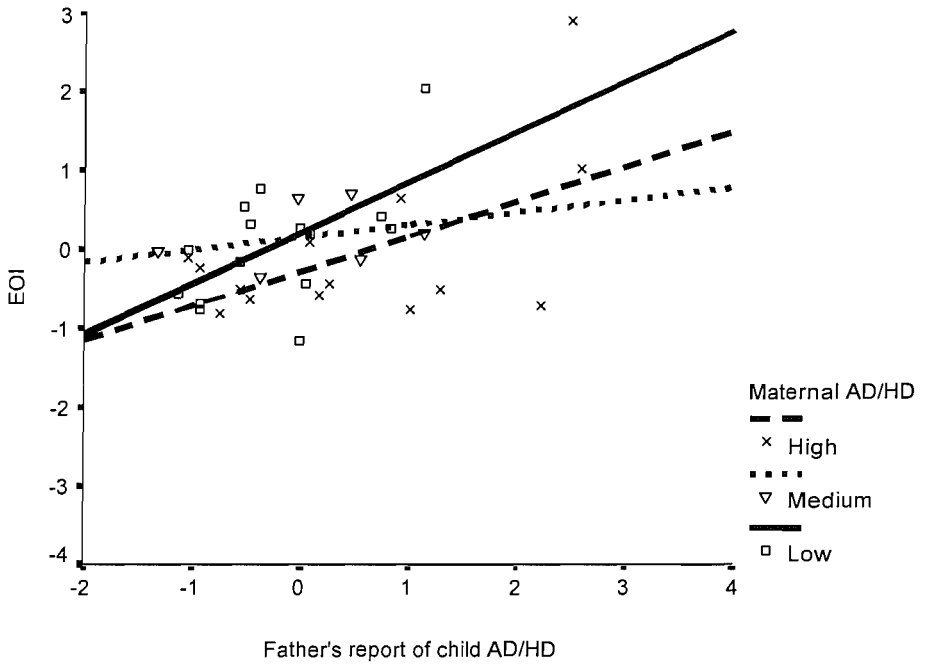


Fig 5.10: Association between child and maternal AD/HD on EOI

5.6.5: The Impact of AD/HD on Mother's Empathy and Personal Distress

5.6.5.1: Correlations and factor analysis for measures of empathy

The final aim of the study was to examine the associations between AD/HD symptoms and empathy. Table 5.13 displays correlations between components of empathy and measures of child and parental psychopathology. Overall, most correlations between components of the empathy measure were significant and in the expected direction. For mothers, perspective taking was positively correlated with emotional concern and negatively with personal distress. For mothers, components of empathy were correlated with measures of psychopathology. Perspective taking was negatively correlated with child AD/HD symptoms and conduct problems as were with maternal AD/HD symptoms, depressive and anti-social characteristics. Also, emotional concern was negatively correlated with child conduct problems. Personal distress was positively correlated with child AD/HD symptoms, conduct problems and emotional symptoms. Also, personal distress was significantly and positively correlated with maternal AD/HD symptoms, depressive and anti-social characteristics.

For fathers, there was only a significant positive correlation between perspective taking and emotional concern. Also, there was only a significant negative association between emotional concern and paternal emotional symptoms and a significant positive correlation between personal distress and paternal anti-social characteristics. No other correlations were significant.

Table 5.13: Correlations Among Components of Parenting and Measures of Child and Parental Psychopathology

	Mothers		
	Perspective Taking	Emotional Concern	Personal Distress
1. Perspective taking			
2. Emotional concern	.37**		
3. Personal distress	-.24**	-.04	
4. Child AD/HD	-.21**	-.08	.17**
5. Child emotional	-.06	-.02	.14*
6. Child conduct	-.27**	-.16**	.20**
7. Mother AD/HD	-.25**	-.12	.31**
8. Mother emotional	-.14*	-.05	.20**
9. Mother anti-social	-.28**	-.06	.38**
	Fathers		
	Perspective Taking	Emotional Concern	Personal Distress
1. Perspective taking			
2. Emotional concern	.56**		
3. Personal distress	-.05	.05	
4. Child AD/HD	-.10	-.08	.17
5. Child emotional	-.14	-.19	.10
6. Child conduct	-.09	-.21	.15
7. Paternal AD/HD	-.20	-.07	.19
8. Paternal emotional	-.10	-.29**	-.02
9. Paternal anti-social	-.18	-.02	.32**

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

To reduce the number of the empathy scales, principal components analysis with components rotated to a varimax solution with orthogonal factors were used for mothers and fathers separately. For mothers, two factors emerged. Perspective taking and emotional concern loaded on the first factor (Empathy - EM). This factor accounted for the 45 percent of the total variance. Personal distress was loaded on the second factor - Personal Distress (PD). This factor accounted for the 36 percent of the total variance. The two factors accounted for 81 percent of the total variance.

For fathers, perspective taking and emotional concern loaded on the first factor (Empathy - EM). This factor accounted for the 52 percent of the total variance. Personal distress loaded on the second factor (Personal Distress - PD). This factor accounted for the 34 percent of the total variance. The two factors accounted for the 86 percent of the total variance (See Table 5.14).

Table 5.14: Factor Matrix for Components of Empathy

	Mothers	
	EM	PD
1. Perspective taking	**.750**	-.371
2. Emotional concern	**.882**	.131
3. Personal distress	-.044	**.961**
	Fathers	
	EM	PD
1. Perspective taking	**.884**	-.088
2. Emotional concern	**.884**	.090
3. Personal distress	.001	**.997**

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

Table 5.15 displays correlations among the factors and child and parental psychopathology. For mothers, correlations between Empathy and adjustment problems were in the expected direction. Empathy was negatively correlated with child AD/HD symptoms, child conduct problems as were with maternal AD/HD symptoms and maternal anti-social characteristics. Personal Distress was positively correlated with child AD/HD, child emotional and child conduct problems as were with maternal AD/HD, maternal emotional symptoms and maternal anti-social characteristics. For fathers, there was only a significant negative correlation between Empathy and paternal depressive characteristics. There was a significant positive correlation between Personal Distress and paternal anti-social characteristics.

Table 5.15: Correlations Among the Factors and Parental and Child Psychopathology

Mothers

	Child AD/HD	Child Emotional	Child Conduct	Maternal AD/HD	Maternal Depressive	Maternal Anti-social
1. EM	-.15*	-.03	-.23**	-.18**	-.09	-.15*
2. PD	.18**	.14*	.21**	.31**	.21**	.40**

Fathers

	Child AD/HD	Child Emotional	Child Conduct	Paternal AD/HD	Paternal Depressive	Paternal Anti-social
1. EM	-.10	-.19	-.17	-.16	-.22*	-.12
2. PD	.17	.10	.14	.19	-.04	.33**

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

To examine the independent contribution of child and maternal AD/HD symptoms in predicting Empathy and Personal Distress two separate multiple regressions were conducted with empathy and personal distress as the outcome variables. All variables were entered into the model in one single step.

5.6.5.2: Effects of child and maternal AD/HD symptoms on EM and PD based on mother's report on child AD/HD

For EM, the model was significant $F(3, 270)= 3.72$, $p < .01$ (Adjusted $R^2= .03$). There was a negative association between maternal AD/HD symptoms ($\beta= -.15$, $p < .05$) and EM (Figure 5.11). EM decreased as maternal AD/HD symptoms increased. The effect was non significant after controlling for other factors ($\beta= -.12$, ns). Figure 5.11 shows that for all the groups, there was a negative slope and a negative association between EM and child AD/HD symptoms.

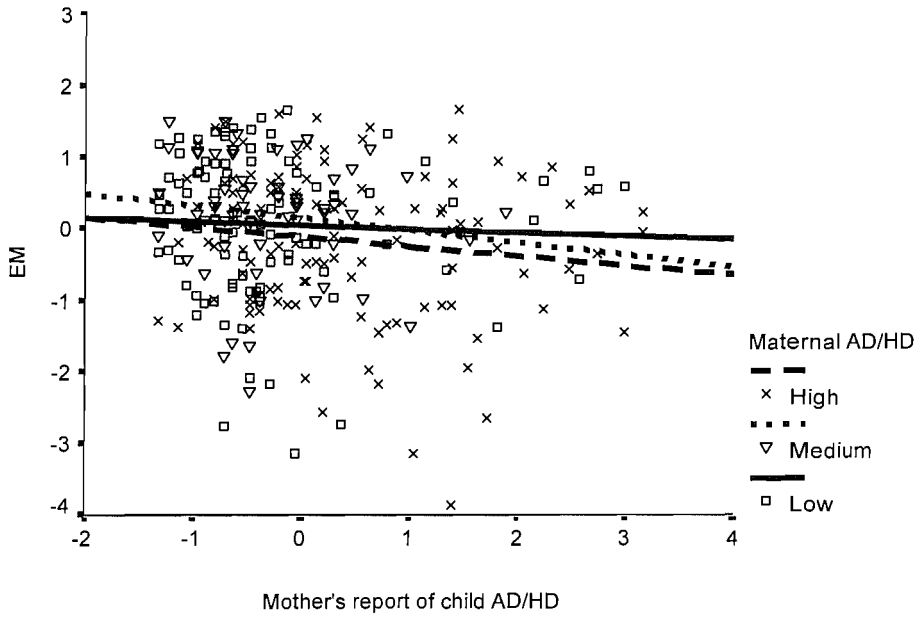


Fig 5.11: Association between child and maternal AD/HD on EM

Note: EM = Empathy

For PD, the model was highly significant $F(3, 270)= 12.32$, $p < .001$, with the combination of the predictors accounting for a significant proportion of the variance (Adjusted $R^2= .11$). There were a significant positive association between maternal AD/HD symptoms ($\beta= .35$, $p <. 001$) and PD and between the interaction term ($\beta= -.16$, $p < .01$) and PD. The interaction was graphically represented in Figure 5.12. The interaction remained significant after controlling for other factors ($\beta= -.14$, $p < .05$) as well as the effect of maternal AD/HD on PD ($\beta= .19$, $p < .01$).

Figure 5.12 shows that for the low maternal AD/HD symptoms group, there was a positive slope and a positive association between PD and child AD/HD symptoms. In other words, mothers with low levels of AD/HD symptoms were more distressed as child AD/HD symptoms increased. For the medium and high groups, there was a slight negative slope suggesting that PD decreased as child AD/HD symptoms increased.

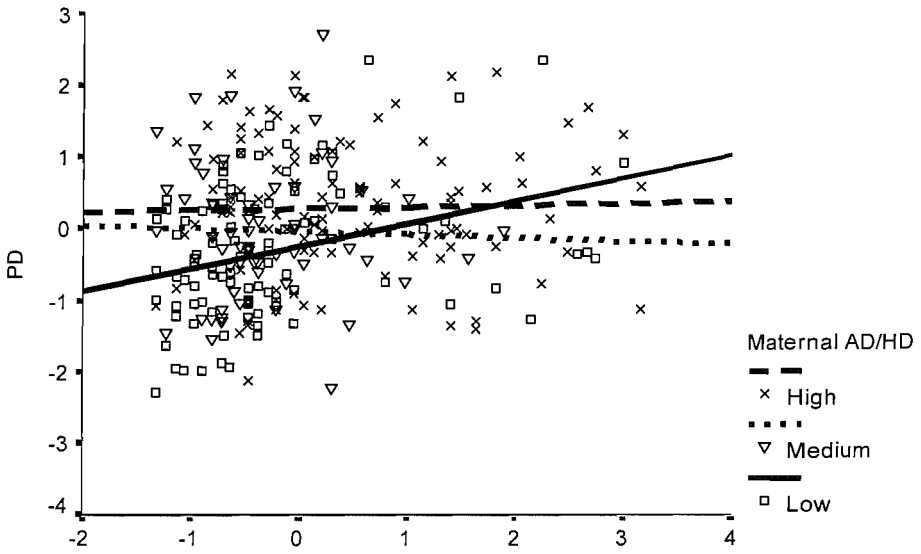


Fig 5.12: Association between child and maternal AD/HD on PD

Note: PD = Personal Distress

5.6.5.3: Effects of child and maternal AD/HD symptoms on EM and PD based on teacher's report on child AD/HD

For EM, the model was significant $F(3, 84)= 3.37$, $p < .05$ (Adjusted $R^2=. 08$). There was a significant negative association between maternal AD/HD symptoms ($\beta= -.25$, $p < .05$) and EM (Figure 5.13). EM decreased as maternal AD/HD symptoms increased. However, Figure 5.13 shows that for the medium group, EM increased as child AD/HD symptoms increased. The effect was non significant after controlling for chid emotional and conduct problems and maternal depressive and anti-social characteristics ($\beta= -.27$, ns).

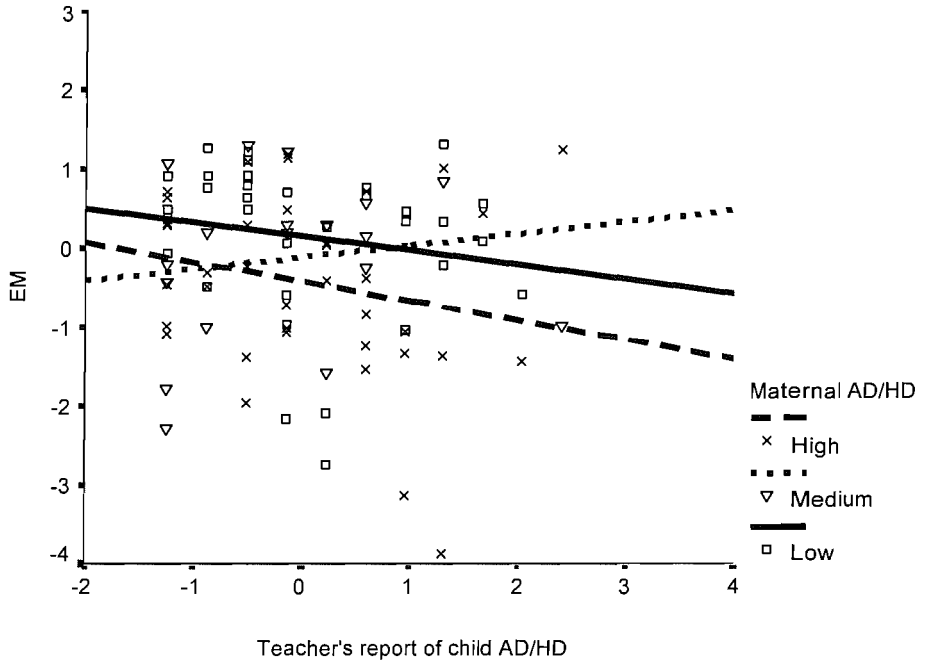


Fig 5.13: Association between child and maternal AD/HD on EM

For PD, there was an association between maternal AD/HD symptoms (β= .24, p < .05) and PD (Figure 5.14). The effect was non significant after controlling for other factors (β= .06, ns). This Figure is consistent with Figure 5.12 as both show that for the low maternal AD/HD symptoms group, PD increased as child AD/HD symptoms increased, whereas it decreased for the medium and high groups.

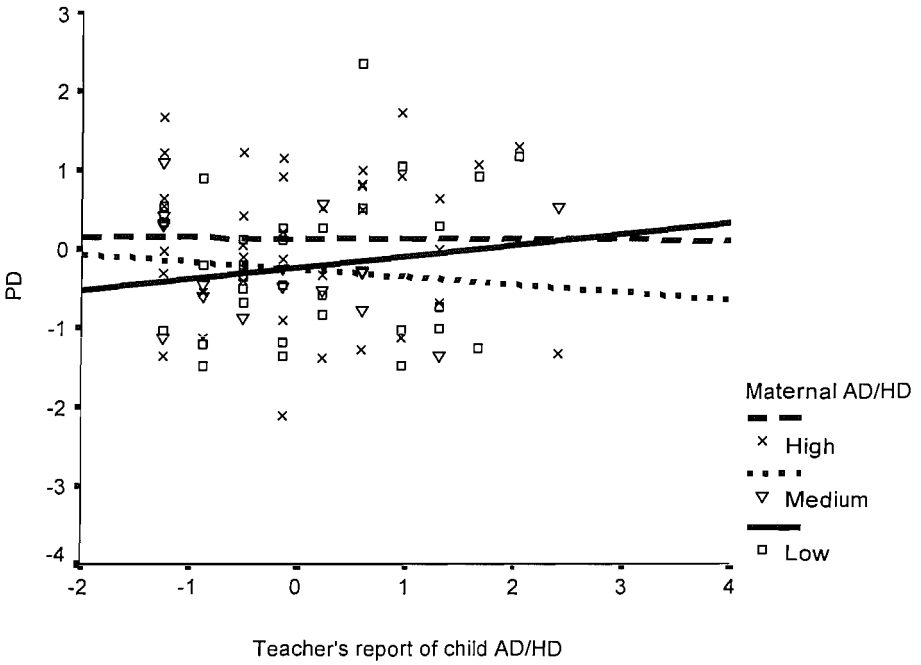


Fig 5.14: Association between child and maternal AD/HD on PD

5.6.5.4: Effects of child and maternal AD/HD symptoms on EM and PD based on father's report on child AD/HD

For EM, there were no main effects or interactions $F(3, 44)= .42$, $p > .10$. For PD the overall model was significant $F(3, 44)= 5.59$, $p < .05$, with the combination of the predictors accounting for a significant proportion of the variance (Adjusted $R^2= .23$). This effect was carried by a significant positive association between maternal AD/HD symptoms ($\beta= .68$, $p < .01$) and PD and between the interaction term ($\beta= -.40$, $p < .05$) and PD (Figure 5.15). After controlling for other factors the interaction remained marginally significant ($\beta= -.35$, $p= .059$). Also, the effect of maternal AD/HD symptoms on PD ($\beta= .48$, $p= .052$) was marginally significant after controlling for other factors. Figure 5.15 shows that for the medium group, PD increased as the levels of child AD/HD symptoms increased. For the high group the line was essentially flat, whereas, for the low group, there was a slight positive slope.

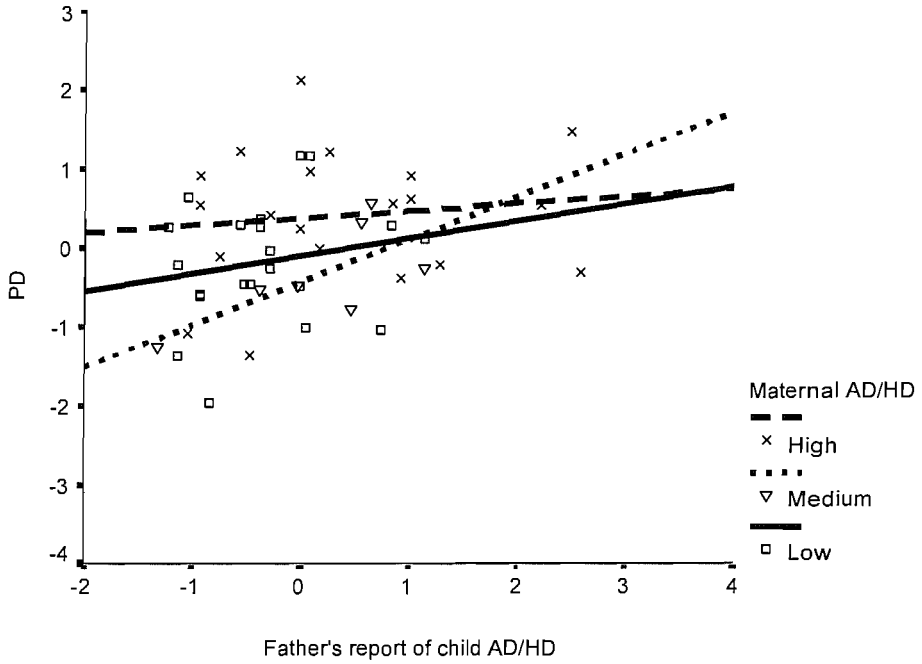


Fig 5.15: Association between child and maternal AD/HD on PD

5.6.6: The Impact of AD/HD on Father's Empathy and Personal Distress

When father's reported on child AD/HD, there were no significant effects or interactions neither for empathy $F(3, 79)= 1.24$, $p > .30$ nor for personal distress $F(3, 79)= 1.27$, $p > .34$. Similarly, when teacher's reported on child's AD/HD, there were no significant main effects or interactions for empathy $F(3, 31)= .78$, $p > .10$ and personal distress $F(3, 31)= 2.01$, $p > .13$. Finally, when mothers reported on child's AD/HD, there were no significant main effects or interactions for empathy $F(3, 43)= .37$, $p > .10$ and personal distress $F(3, 43)= 1.48$, $p > .23$.

5.7: Discussion

The aim of Study 3 was to examine the influence of child and parental AD/HD symptoms on parenting, EE, child-related-empathy and parental personal distress. The study provided partial support for the predictions. Child AD/HD symptoms were positively associated with negative parenting for mothers and fathers. Also, child AD/HD symptoms were positively associated with maternal Criticism (CRIT) and maternal Emotional Over-Involvement (EOI), whereas maternal AD/HD symptoms were negatively associated with positive parenting and positively with negative parenting. Furthermore, the results revealed that child and maternal AD/HD symptoms interacted together in decreasing negative parenting and personal distress and emotional over-involvement with the child. In contrast, child and paternal AD/HD symptoms interacted together in increasing negative parenting.

5.7.1: Child effects

Child AD/HD symptoms were associated with increased Negative Parenting (NP - Inconsistent discipline, poor monitoring and physical punishment) for both parents. The finding was replicated with mothers, fathers, and teachers rating on child AD/HD. The same result was found in Study 1 using questionnaires completed in relation to a school-aged sample, and in Study 2 using observational data with a preschool sample. It seems that the association between child AD/HD symptoms and negative parenting is a very robust and a well-replicated finding across different methodologies and age groups (Befera & Barkley, 1985; Mash & Johnston, 1982; McKee et al., 2004; Stormshlak et al., 2000; Miller et al., 1993). Also, it appears that there are no differences between mothers and fathers and that for both of them parenting is negatively affected by child AD/HD symptoms.

Also, the results demonstrated that child AD/HD symptoms, as rated by their mothers, were associated with maternal CRIT and maternal EOI. These effects were not significant after controlling for other factors and also were not replicated when fathers and teachers reported on the child's AD/HD (only the effect of child AD/HD on EOI remained significant based on maternal reports on child AD/HD). It is possible that significant effects or interactions were not found with different reporters because of the small sample size of fathers and teachers in this study.

These findings are in line with other reported studies. Stubbe, Zahner, Goldstein and Leckman (1993) examined the association between EE and psychiatric disorders in a

community sample of preadolescent children. They found higher levels of criticism in parents of children with disruptive behaviour diagnosis. Peris and Hinshaw (2003) examined the relationship between parental EE and AD/HD as well as comorbid disruptive behaviour in a sample of girls aged 6-12 years. They found that both AD/HD and aggression were associated with high EE and the associations were independent of parenting stress and maternal depression. They also found that the CRIT component had the strongest associations with AD/HD and aggression. Similarly, McCarty, Lau, Valeri and Weisz (2004) examined CRIT and EOI and parent-child interactions in a sample of 252 clinic-referred children. They found that parents who expressed high CRIT, when they interacted with their children showed more antagonism, negativity, disgust, harshness, and less responsiveness in comparison to parents with low or medium levels of EE. In relation to EOI, they found that parents who had high levels of EOI did not differ from parents with low and medium EOI in observed behaviours during parent-child interactions, such as control, independence, punishment. The authors suggest that the EOI component of EE might lack validity in samples of this age range or maybe that behaviours that reflect EOI are difficult to be observed during interactions.

In the present study, both components of EE were positively associated with child AD/HD symptomatology. The high CRIT and EOI expressed by mothers may have serious implications for the child development. For example, criticism has been found to have negative consequences on recipients' feelings about themselves (Coyne, Downey & Boergers, 1992). Criticism has also been found to have a negative effect on the way families deal with conflict and negative feelings (Baron, 1988). Goodman, Adamson, Riniti and Cole (1994) found that mother's high levels of critical attitudes mediated the relationship between mother's depression and decreased self-esteem in children. Similarly, maternal criticism was found to increase the risk for psychological disorder in children beyond the risk of parental affective disorder (Schwartz, Dorer, Beardslee, Lavori & Keller, 1990).

The significant association between child AD/HD symptoms and EE is of critical importance, because the predictive validity of EE and its contribution to the development of comorbidity was demonstrated in previous studies. Taylor et al., (1996) examined the effect of EE on the course of AD/HD. They found that decreased warmth and hostile EE at age 7 were significant predictors of the course of AD/HD, particularly the degree to which children with AD/HD developed conduct disorder. Another study revealed that high EE (high criticism and hostility), when the

child was in the preschool age, was a significant predictor of AD/HD at a third grade, after controlling for child behavioural problems and mother's stress (Peris & Baker, 2000). Also, the present study examined the effects of child AD/HD symptoms on empathy and personal distress but the results did not reveal any significant main effects of child AD/HD symptoms on these measures.

In summary, the results showed that child AD/HD symptoms were associated with increased negative emotional climate at home (for mothers) and negative parenting practices (for mothers and fathers). Unfortunately, the small sample size of fathers who took part in the EE did not allow testing any associations between child AD/HD and EE. It is possible to think that fathers express high EE as mothers, which in turn adds cumulatively to affect parenting and child adjustment. Consequently, EE in both parents needs further investigation in future studies. The cross sectional nature of the study did not allow an examination of causal relationships but it is most likely that bi-directional influences operate at the same time.

5.7.2: Parental effects

Maternal AD/HD symptoms were associated with decreased Positive Involved Parenting (PIP - Positive parenting and involvement). This result was found when mothers and teachers were the source of information for child's AD/HD symptoms. Also, a positive association was found between maternal AD/HD symptoms and Negative Parenting when teachers reported on child AD/HD. No significant effects were found for fathers. The sample size may not have provided enough power to detect main effects for fathers. A second possibility is that AD/HD symptoms in fathers do not influence parenting. If this were the case then this would be contrast to previous studies documenting the negative effects of fathers' AD/HD symptoms on parenting (Arnold et al., 1997; Harvey et al., 2003).

In addition, maternal AD/HD symptoms were associated with increased maternal Personal Distress (PD). This result was found across the three sources of reports on child AD/HD symptoms: mothers, fathers, teachers. No significant effects were found in relation to father's personal distress. The findings suggest that symptoms of inattention, impulsivity and hyperactivity are associated with negative reactions by mothers but not fathers to perceiving cues relating to child's distress (Batson, 1991; Davis, 1983). Given the limited research on AD/HD in adulthood, we can only speculate about the significance of this finding. As described in Chapter 4 (Section 4.7.2), mothers with AD/HD might have problems with emotional regulation and a low

threshold for frustration, which as a consequence, increases feelings of distress. Therefore, it would be naive not to think that the distress parents experience may function in conjunction with the child's misbehaviour. There are plenty of studies that have examined personal distress in parents of children with AD/HD. Pelham, Lang, Atkeson, Murphy, Gnagy, Greiner, Wodde-Hamilton and Greenslade (1997) examined the level of adult distress and alcohol consumption of adults following interactions with child confederates in parents of children with no diagnosable psychiatric disorders. They found that adults who interacted with deviant confederates rated the interactions as significantly more unpleasant, causing feelings of role inadequacy, and also more anxiety, depression and hostility. Also, they drank more alcohol after interacting with the deviant confederates in comparison to the normal ones. Therefore, it is not certain if the construct of distress examined in the Pelham et al., (1997) study is equivalent to the distress that was examined in Study 3.

Maternal AD/HD symptoms were associated with decreased Empathy (Perspective taking and emotional concern - EM) as shown in analyses using self-reports and teacher's reports on child AD/HD symptoms. No significant main effects were found for fathers, perhaps, this is not surprising as evidence suggests that empathy characterises female more than male relationships, which are believed to be more assertive and hierarchical (Gilligan, 1982). Deficits in empathy and remorse are characteristics of individuals with antisocial personality disorders (American Psychiatric Association, 1994; Frick, 1998). The relation between externalising disorders and low concern for the impact of one's behaviour on others implies that empathy may contribute to the reduction or inhibition of aggressive or antisocial behaviour toward others (Feshbach & Feshbach, 1982).

There are no previous studies that have examined AD/HD in adults and its association with empathy for the child. There are only a few studies that examined AD/HD in children and empathy. Braaten and Rosen (2000) examined differences in empathy between boys with and without AD/HD. Empathy was assessed by an empathy response task and with self and parent reports of emotional responses. On the empathy response task, children responded verbally to eight fictitious stories. They found that boys with AD/HD were less empathic in comparison to boys without AD/HD. Also, boys with AD/HD less frequently matched the emotion they identified in the character with the one they identified in themselves. They also gave fewer character-centered interpretations in their descriptions of the character's emotion. In

another study, Hughes, White, Sharpen and Dunn (2000) examined observed differences between pre-school "hard to manage" disruptive children and normal controls on empathic/prosocial responses to friend's distress. They found that the responses of the "hard to manage" children were characterised by lower levels of empathy and they also expressed more negative emotions. In another study, Dunn and Hughes (2001) compared "hard to manage" children with normal controls in social understanding, antisocial and emotional behaviour, and also the way they interacted with friends. These children were assessed again two years later when they were 6 years old in their understanding of the emotional consequences of antisocial and prosocial actions. They found that the "hard to manage" children expressed less empathic moral sensibility at 6 years old. Also, they expressed more anger, more conflict with a friend and also refused to help a friend.

It seems that AD/HD symptoms, at least in the childhood population, impair empathy. The present study suggests that empathic skills are impaired even when empathy for the offspring is concerned. Mothers with the disorder appear less able to feel for their child despite the closeness and the intimacy of their relationship. In the next sections, the conjoint effects of child and parental AD/HD symptoms are investigated in the variables described above.

5.7.3: Child and parental effects

Significant interactions were found between child and parental AD/HD symptoms in predicting Negative Parenting (NP), Personal Distress (PD) and Emotional Over-Involvement (EOI):

5.7.3.1: Child and parental AD/HD in predicting parenting

Child AD/HD symptoms interacted with maternal AD/HD symptoms in decreasing Negative Parenting. Importantly, the interaction remained significant above and beyond the contribution of child and maternal emotional symptoms/depressive characteristics and conduct problems/anti-social characteristics respectively. Figure 5.2 showed that mothers with low AD/HD symptoms had the highest levels of NP when their child had high AD/HD symptoms. This group may be at risk because the NP may increase existing behavioural problems in the child and/or may contribute to the development of comorbid problems.

The interaction showed that the mothers with high AD/HD symptoms had less NP for the child with high AD/HD symptoms. This significant interaction is consistent with the

findings from Studies 1 and 2. The previous studies demonstrated that mothers with high AD/HD symptoms are more positive in their parenting for their child with high AD/HD symptoms. Study 3 reveals that for mothers with high AD/HD symptoms NP did not increase as child AD/HD symptoms increased. In the previous studies, it was mentioned that the interactions were found possibly due to rating bias and the current study did not seem to fully reconcile this issue. Teachers reported on child AD/HD and the plotted interactions (even though not significant) were in the same direction as when the parents were the informants, and thus, providing some support for the validity of the findings.

For fathers, the interaction was in the opposite direction when fathers reported on child AD/HD symptoms. It was found that child AD/HD symptoms interacted with father's AD/HD symptoms in increasing Negative Parenting. The interaction remained significant above and beyond the contribution of child and paternal emotional symptoms/depressive characterisctis and conduct problems/anti-social characteristics, respectively. Figure 5.5 showed that father's with high AD/HD symptoms had the highest levels of Negative Parenting for the child with high AD/HD symptoms. This finding supports findings by Harvey et al. (2003), which found that fathers' self-reports of inattention and impulsivity were associated with self-reports of lax parenting not only before parent training but also after it. These results may suggest that the AD/HD symptomatology in fathers is strongly associated with negative parenting and may also be resistant to therapeutic interventions and change.

Therefore, it is worth considering that, when teachers and mothers reported on child AD/HD symptoms, the interactions between father's and child AD/HD symptoms were not significant. Also, looking at the related graphs a different pattern of results occurred. Based on teacher's reports, it was found that fathers with medium AD/HD symptoms had the highest levels of Negative Parenting for the child with high AD/HD symptoms. For the low and high groups, the levels of Negative Parenting were almost the same for the high AD/HD child. When mothers were the reporters, it seemed that fathers with low AD/HD symptoms had high NP for the AD/HD symptoms child. A similar pattern was found for high paternal AD/HD symptoms, whereas for the medium group the line was slightly flat and the levels of NP seemed not to be affected by the level of child's AD/HD symptoms. Therefore, these two graphs plotted only significant main effects. The findings especially for fathers need replication in future studies.

In summary, the analysis for parenting revealed two significant interactions: child and mother's AD/HD symptoms decreased Negative Parenting and child and father's AD/HD increased Negative Parenting. One interesting question that is raised by these interactions is why mothers with AD/HD symptoms are more positive and/or less negative in their parenting for their child with AD/HD, whereas fathers are more negative. As it was mentioned in Chapter 4 (Section 4.7.3), if parental tolerance is a factor that accounts for the association, then it is assumed that there are differences between mothers and fathers in their levels of tolerance for child misbehaviour. There are no studies about the tolerance of AD/HD parents that could support this prediction. Yet, there is a study by Minde, Eakin, Hetchman, Ochs, Bouffard, Greenfield and Looper (2003), which examined the psychosocial functioning of children and spouses of adults with AD/HD. They found significant differences between men and women in relation to supportiveness and tolerance. The results demonstrated that men with wives who had AD/HD reported being highly distressed and expressed more criticism for their wives. On the other hand, wives without AD/HD in general displayed much more support and showed more willingness to compensate for their AD/HD husbands' shortcomings. The findings may suggest that men are less tolerant of shortcomings displayed by family members whereas women appear more supportive and nurturing probably due to sex roles (Eagly, 1987).

Another issue to consider is child adjustment in families where mothers with AD/HD symptoms adopt a positive/and less negative style of parenting, while fathers with AD/HD symptoms adopt a negative style of parenting. Theories of family functioning suggest that, if parents have very differing child-rearing views and practices, they may not work as a team to co-parent, which in turn increases the severity of child behaviour problems (Bears & Eyberg, 1998). In addition, different child-rearing views between the parents can be a source of conflict. Family system theorists (Minuchin, Rosman & Baker, 1978; Haley, 1976) suggest the contagion of conflict from one family sub-system to another family sub-system, and thereby, involving and affecting family members who were not part of the original conflict. In such a family environment, it is likely that individuals seek out more satisfactory experiences in a particular relationship to compensate for deficiencies experienced in other relationships (Erel & Burman, 1995). In this case, it can be predicted that children would build a stronger relationship with their mother and a distant and negative relationship with the father. However, it is doubtful how healthy such a relationship can be for the child psychological well being.

5.7.3.2: Child and parental AD/HD in predicting personal distress

Child AD/HD symptoms interacted with maternal AD/HD symptoms in decreasing maternal Personal Distress. The interaction remained significant above and beyond the contribution of child and maternal emotional symptoms/depressive characteristics and child conduct problems/anti-social characteristics, respectively. When teachers reported on child AD/HD symptoms, the interaction was not significant but Figure 5.14 showed that the pattern was the same as when mothers reported on child AD/HD symptoms. Specifically, it was mothers with low AD/HD symptoms who had the highest personal distress for the child with high AD/HD symptoms, whereas for the groups with medium and high maternal AD/HD symptoms personal distress seemed to decrease as child AD/HD symptoms increased.

A significant interaction was also found when fathers reported on child AD/HD symptoms (the interaction was only marginally significant after controlling for other factors). In Figure 5.15, it seems that the high maternal AD/HD symptoms group was not affected by the severity of child's AD/HD symptoms. However, the group with medium maternal AD/HD symptoms had the highest levels of personal distress when the child had high AD/HD symptoms. For the low maternal AD/HD symptoms group, there was a slight positive slope, with PD increased as did child AD/HD symptoms.

These findings are somewhat in line with previous studies. Vitanza and Guarnaccia (1999), tested a model of psychological distress for mothers of children with AD/HD. The model included measures of parenting stress, parent characteristics and environmental characteristics and all the variables were expected to influence psychological distress. The results displayed that the child difficult behaviour was the strongest predictor of mother's parenting stress. Interestingly, however, regardless of the level of child AD/HD symptomatology, what was most important in relation to mother's level of parenting distress was how challenging and oppositional the mother perceived her child to be. The authors went on to suggest that a parent whose offspring have medium levels of AD/HD symptoms may feel extremely overwhelmed, whereas a parent whose offspring have very pronounced AD/HD symptoms may feel comfortable in coping with the offspring difficult behaviour. The authors found that the child's temperament, level of AD/HD symptoms and parenting tasks were not significant indicators. Among the significant contributors to psychological distress were mother's depression but the authors also found that interpersonal sensitivity, which taps feelings of sensitivity with regard to how a person perceives the treatment

they receive from others, was an important indicator of its contribution to psychological distress.

These findings make sense because, as mentioned elsewhere in the thesis (Section 4.7.3), parents with AD/HD symptoms may have high levels of tolerance for the child misbehaviour and may interpret it in the context of knowing the difficulties the child's experiences. Of course, there may be other factors that can affect the parent's distress and attributions may be one of them. Research demonstrates that parents' attributions for their children's behaviour relate to both parental emotional reactions to the behaviour and to the parenting behaviours that follow misbehaviour (Miller, 1995). Typically parents become upset by a child's misbehaviour if they think that the child behaves that way on purpose, if they attribute a negative disposition to the child, or if they think that the child has the knowledge needed in order to behave in a different way (Miller, 1995).

Slep and O' Leary (1998) manipulated mothers' attributions for their children's misbehaviour and found changes in maternal disciplinary practices, as well as in their affective reactions to their children. In particular, mothers in a condition designed to elicit attributions of responsibility to their child for misbehaviour, reacted with harsher discipline and (marginally) more angry affect. This, in turn, elicited more negative affect from their children. Barkley (1990) found that mothers of children with AD/HD high in distress have altered perceptions of, and lower tolerance for, their child's misconduct. An array of failure experiences to gain compliance from a child with AD/HD may lead to withdrawal from the child as an attempt to avoid further failure experience (Barkley & Cunningham, 1979) as well as decreased sense of parenting efficacy and heightened psychological distress.

5.7.3.3: Child and parental AD/HD in predicting EOI

Finally, a significant interaction was found between child and maternal AD/HD symptoms in increasing Emotional Over-Involvement (based on father's report on child AD/HD). Figure 5.10 showed that it was mothers with low AD/HD symptoms being more emotionally over-involved with the child who had high AD/HD symptoms. For the high maternal AD/HD group, the slope was again positive suggesting that EOI increased as child AD/HD increased. Interestingly, the line was almost flat for the medium group.

Children with EOI mothers might be at risk for the development of internalising disorders as previous research has found an association between EOI and internalising disorders (Stubbe et al., 1993). However, some researchers suggest that EOI might be the norm especially for juvenile samples (Wamboldt & Wamboldt, 2000; Seifer, Sameroff, Baldwin & Baldwin, 1992). For example, positive remarks had been found to be more common among mothers of normal children than mothers of psychiatrically disturbed children. They also found that they were associated with improvement in social and emotional functioning over time rather than worsening (Seifer et al., 1992).

Also, caution is required in interpreting this finding because of issues relating to the validity and internal consistency of the EE. For example, McCarty and Weisz (2002) found that maternal positive remarks were associated with fewer externalising problems. Wamboldt and Wamboldt (2000) compared EE in the parents of children with asthma and controls. They found that positive remarks were positively correlated with better child and family functioning. Positive remarks were linearly correlated with better family functioning and parent-child interaction. Likewise, Kershner, Cohen and Coyne (1996) found that EE distinguished between clinical and non-clinical families of children between 7 and 16 years old. Therefore, non-clinical families expressed a higher number of positive remarks than clinical families. They also found that dissatisfaction, overprotection, emotional display and excessive detail were almost completely or entirely absent.

In the present study, only 5 mothers out of 193 demonstrated emotional display and only 6 out of 193 described details about the past. Also, in the present study many parents displayed over-protection as they usually provided an excuse for the child's misbehaviour (e.g., "my child is very untidy but he is only six"). Also, there were problems with the factor loading of some of the components of the EE. Positive remarks and overprotection loaded (negatively) on the CRIT component whereas they were supposed to load on the EOI construct (Magana et al., 1986). Overall, the present study and the previous ones highlight the need for further clarification of the reliability and validity of the EE as well as clarification of the meaning of the EE.

Despite these methodological limitations, the significant interaction suggests that it was mothers with low AD/HD symptoms who were more emotionally over-involved with their AD/HD child. It is likely that, when the child has AD/HD, parents try to provide emotional support and assistance rather than independence and autonomy.

As previous studies suggest, emotional-over-involvement may not be a significant risk factor for the children, especially for young ones, as in the present study, in which children had an average age of 7 years. These patterns may of course change and constitute a risk factor later on in development when emotional over-involvement is developmentally inappropriate. Maybe it is appropriate for a parent to be over-protective towards a young child, but it can be intrusive for older children who are capable of autonomy and independent decision making.

5.7.4: Methodological considerations

Some methodological limitations of the study should be taken into account. First of all, parents reported on their own AD/HD symptoms. Despite the fact that Murphy and Schachar (2000) provided evidence that adults can give a true account of their current (and childhood) AD/HD symptoms, a better option would be to have mothers report on their husband's AD/HD symptomatology and vice versa. Though, such an option would reduce significantly the sample size, as fathers were not easily available. Furthermore, it is likely that the results were influenced because parents with severe AD/HD symptoms and clinical impairment did not participate in the study.

In addition, empathy was assessed with questionnaires and its possible that parents may have responded in a socially desirable manner, because it may have been guilt-provoking for them to report low levels of empathy. It would have been a better option if the study had used more implicit measures of empathy. For example, the study could have examined facial expressions and gestures of parent and also self-reports of their feelings while watching emotion-evoking slides. The protagonist could be a child and the parent would have to imagine that it was his/her child in the particular situation. However, due to the time constrains of the thesis, it was not feasible to collect such data.

Also, the results from all the three studies converge with each other and increase confidence about the validity of the phenomenon. Though, although significant, most of the interactions were low or medium in size. This methodological issue will be discussed in more details in the final chapter of the thesis. Finally, an important limitation of Study 3 was the comparison across reporters and the small number of fathers and teachers who rated the child's behaviour in comparison to the large sample size of maternal reports on child's behaviour.

The results demonstrated inconsistencies across reporters, more pronounced for fathers' parenting where among the three groups the plotted lines differed. The small sample of fathers and teachers maybe did not capture the range of AD/HD symptomatology and this might resulted in non-significant interactions. Of course, the other possibility that the interaction was found due to self-report bias is not precluded and this highlights the need for future replication.

5.8: Summary and Aim of Chapter 6

In summary, Study 3 examined the effects of child and parental AD/HD symptoms on parenting, EE, child-related-empathy and personal distress. It was found that mothers with high AD/HD symptoms were less negative for the offspring with high AD/HD symptoms and also less personally distressed and emotionally over-involved with their AD/HD child. In contrast, fathers with high AD/HD symptoms seemed to be more negative in their parenting for their child with high AD/HD symptoms. Overall, Study 3 demonstrated a broad range of varied results where common pictures occurred as well as inconsistencies. The inconsistencies came from differences across the various reporters. Of course, there is the issue of the small sample size of fathers and teachers that maybe did not have enough statistical power to detect significant interactions. However, caution should be exercised in interpreting the results, as the issue of self-reporting bias was not reconciled in Study 3.

Overall, the results from all the three studies presented in the thesis suggest that there are mutual interactions between the "AD/HD status" of the parent and the child in predicting parenting and other measures of parental functioning. One might wonder if such mutual influences are found only for the AD/HD symptomatology or if it is a general phenomenon that might apply for other adjustment problems. This research question is investigated in Chapter 6, which aims to examine the contribution of child emotional symptoms and maternal depressive characteristics and their possible interaction in predicting parenting.

This investigation is exploratory in nature. If the similarity between child and parent in adjustment problems were true, then one would expect similar interactions between child and adult emotional symptoms/depressive characteristics as they were found for AD/HD symptoms. Therefore differences in the direction of the interactions might be possible. For example, Niederhofer, Hackenberg, Stier, Lanzendorfer, Kemmler and Lechner (2003) found that families with emotional symptoms were characterised

by low expressiveness, independence, active and recreational orientation whereas families with AD/HD were characterised by a significant lack of organisation and cohesion.

To investigate this phenomenon, the next chapter examines child emotional symptoms and maternal depressive characteristics and examines whether the child-mother similarity in emotional/depressive characteristics predict positive parenting and/or a decrease in negative parenting. Chapter 6 is based on the data from the three studies presented in the thesis.

Chapter Six: Do the Effects of Child-Parental Similarity in AD/HD Generalise to Other Symptom Domains?

6.1: Overview of Chapter 6

The aim of Chapter 6 is to examine whether the effects found in Studies 1 to 3 (especially the "protective quality" of mother-child similarity) were specific to AD/HD or can be generalised to other types of childhood and adult problems. The analysis was based on data for child emotional symptoms and maternal depressive characteristics collected during the three studies already reported in this thesis. Interestingly, there was some support for the "protective value" of parent child similarity in characteristics other than AD/HD, although the phenomenon could not be described as a general one. The results demonstrated that child emotional symptoms and maternal depressive characteristics interacted with each other in decreasing Negative Expressed Emotion. Specifically, the plotted interaction showed that, for mothers with high depressive characteristics, the level of Negative Expressed Emotion was almost the same whether the child had low or high levels of emotional symptoms. Mechanisms that could account for the findings are discussed.

6.2. Introduction to Chapter 6

Depression is characterised by affective, cognitive and physical symptoms, such as sad mood, loss of interest, fatigue, low energy, poor concentration, feeling of self-reproach, changes in appetite, motor activity or sleep patterns, and suicidal thoughts (American Psychiatric Association, 1994). Depression affects approximately 10 to 20 % of women at any point in time (Kringlen,Torgersen & Cramer, 2001) but the greatest risk for first onset of major depression in women is during the childbearing years (Weissman, Bland, Canino, Raravelli, Greenwald, Hwu, Karam, Lee, Lellouch, Lepine, Newman, Oakley-Browne, Rubio-Stiopec, Wells, Wickramaratne, Wittchen & Yeh, 1996). Barkley, Anastopoulos, Guevremont and Fletcher (1992) found that depression is about two to three times more common among mothers of children with internalising and externalising disorders in comparison to mothers of children without problems. Civic and Holt (2000) found that mothers of children with three or more adjustment problems such as temper tantrums, social problems, and unhappiness were 3.6 times more likely to have elevated levels of depression. Other studies found that stress and depressive symptoms in mothers decrease as child behaviour improves (Taylor, Schmidt, Pepler & Hodgins, 1998; McCormick, 1995), and they get worse as child problems deteriorate (Pelham et al., 1997).

Studies have found that children of depressed mothers are more likely to have internalising and externalising problems than children of non-depressed parents. In a longitudinal study, Weissman, Warner, Wickramaratne, Moreau and Olfson (1997); Weissman, Fendrich, Warner and Wickramaratne (1992) compared children of depressed and control women and they followed up these children 2 and 10 years later. The results demonstrated that, at the beginning of the study, children of depressed parents in comparison to controls were at an elevated risk for major depressive disorder, anxiety disorder, and poorer overall functioning. At the 2 year follow-up, the incidence rate for depression was 8.5 % with all cases of major depression evident in the offspring of depressed parents. At the 10-year follow-up, they found increased rates of major depression, phobias (a three-fold increase), panic disorder and alcohol dependence (a five-fold increase) in comparison to children of control parents.

A number of factors have been proposed to explain how depression influences children (Goodman & Gotlib, 1999; 2002; Downey & Coyne, 1990), however, most researchers argue that there is interplay between risk factors. Some of the mechanisms are (1) genetic predisposition (Rutter, 1990), (2) dysfunctional neuro-regulatory systems, with elevated stress hormones, lower vagal tone, and cortical activation hampering regulation processes and precipitating vulnerability to depression (Field, 1998), (3) ineffective parenting (Goodman & Gotlib, 2002), (4) child modelling of depressed behaviours (Puckering, 1989) and (5) experience of stressful events such as, marital conflict and parental illness (Downey & Coyne, 1990).

The review of the literature shows that the parenting style of depressed mothers has a considerable negative impact on the child (Field, Sanberg, Garcia, Vega-Lahr, Goldstein & Guy, 1985; Bettes, 1988). Field (1984) found that depressed mothers show flat affect, provide less stimulation and less contingent responsivity than control mothers. Other studies found that depressed mothers are more negative and unresponsive (Lovejoy, 1991), and that they can be rejecting and hostile towards their child. Observational studies found that depressed mothers show high rates of hostility, and they use directives in guiding the child behaviour (Goodman & Brumley, 1990; Forehand, Lautenschlager, Faust & Graziano, 1986). Colletta (1983) found that maternal depression was related to hostile, indifferent and rejecting patterns of mother-child interaction, and that depressed mothers were more likely than controls to be unhappy, tense, and inconsistent with their children (Davenport, Zahn-Waxler,

Adland & Mayfield, 1984). Bettes (1988) examined the interactions between depressed mothers and their 3 to 4 month-old infants. The results demonstrated that depressed mothers did not modify their behaviour in accordance to the child behaviour, and that indeed, their responses were slow and they were less likely to use the exaggerated intonation characteristic of mothers' speech with their infants. Furthermore, depressed mothers have impairments in child management techniques and have been found to be inconsistent and ineffectual (Susman, Trickett, Iannotti, Hollebeck & Zahn-Waxler, 1985). Kochanska, Kuczynski, Radke-Yarrow and Welsh (1987) reported that depressed mothers have a tendency to avoid confrontation with their children in comparison to controls, and some depressed mothers rely on more directing forceful communication.

Although there is extensive research on the effects of maternal depression on parenting, there are fewer studies that examine the effects of offspring depression on parenting and parent-child relationships. Kaslow, Deering and Racusin (1994) found that the parenting of depressed adolescents was more critical, less warm and supportive and less communicative in comparison to the parenting of non-depressed adolescents (Kaslow et al., 1994). In another study, Sheeber, Hops, Andrews, Alpert and Davis (1998) found that mothers of adolescents with increased levels of depressive symptoms were more likely in comparison to mothers of non-depressed adolescents to increase facilitative behaviour in response to adolescent depressive behaviour. Also, fathers of depressed adolescents were more likely to decrease aggressive behaviour towards adolescent depressive behaviour.

Other researchers have focused on the interaction between negative life events and the effects of parenting on adolescents. They found that stressful life events put adolescents at risk for developing depression, but only when the stressful life events led in disruptive and inconsistent parenting. It was found that maternal warmth and support acted as a protective factor for developing depression in girls by attenuating the association between stressful life events and depression. Only a few studies have examined the interactions between child and maternal depressive symptoms on parenting. Conrad and Hammen (1989) found an interaction between maternal depression and child misbehaviour. The results demonstrated that there were no differences between depressed and non-depressed mothers in either positive or negative interactions toward children without any disturbances. Therefore, when depressed mothers interacted with children with behaviour problems, they were more negative and critical in comparison to non-depressed mothers.

This chapter examines the parenting of the child with high emotional symptoms by mothers with high depressive characteristics. Particularly, it tests whether child and maternal emotional/depressive symptoms interact with each other in increasing positive parenting and/or decreasing negative parenting. This research question is derived from the three previous studies presented in the thesis, which identified that mothers with high AD/HD symptoms were more positive and less negative in their parenting for the child with high AD/HD symptoms. If a similar interaction is found for emotional/depressive characteristics, then it might be argued that the similarity in child-mother similarity in psychopathology in predicting some positive outcomes is a rather general phenomenon.

Specifically, the aim of Chapter 6 is to examine:
(1) The association between child emotional symptoms and parenting.
(2) The association between maternal depressive characteristics and parenting.
(3) The possible interaction between child emotional symptoms and maternal depressive characteristics in predicting parenting.

This chapter was based on the data from the three studies presented in the thesis. For clarity of presentation and consistency among the studies, the analysis was based on mothers only and examined the effects of emotional/depressive characteristics on measures of parenting only.

6.3: Predictions

A number of predictions are made, based on the literature of depression as well as on the findings from the previous studies presented in the thesis.

6.3.1: Child emotional symptoms

(1) Child emotional symptoms would be associated with increased negative parenting, and decreased positive parenting. These predictions are based on previous studies which found that parents of depressed adolescents are more critical, less warm, and less supportive and communicative and have more stress (Kaslow et al., 1994; Sheeber et al., 1998).

6.3.2: Maternal depressive characteristics

(2) Maternal depressive characteristics would be associated with increased negative parenting, and decreased positive parenting. These predictions are based on meta-

analysis by Lovejoy et al., (2000) which demonstrated that depressed mothers have more hostile and disengaged behaviour and lower levels of positive interactions than control mothers.

6.3.3: Child emotional symptoms and maternal depressive characteristics

(3) Child emotional symptoms would interact with maternal depressive characteristics in predicting parenting. The interaction could take a number of different forms:
(a) If the child-mother similarity in AD/HD status in predicting positive parenting were a general phenomenon that applies to other disorders, it would be expected that child emotional symptoms and maternal depressive characteristics would interact with each other in increasing positive parenting and/or decreasing negative parenting.
(b) If the phenomenon found in the previous studies is specific to AD/HD symptoms, it would be expected that child emotional symptoms and maternal depressive characteristics would interact in decreasing positive aspects of parenting and/or increasing negative aspects of parenting.

6.4: Overview of the Analytical Strategy

The analysis is presented in the following sections:

6.4.1: Study 1

Using the data from Study 1, the independent contribution of child emotional symptoms and maternal depressive characteristics were examined using multiple regressions. Child emotional symptoms and maternal depressive characteristics were the independent variables. Positive Involved Parenting (PIP – Positive parenting and involvement) and Negative Parenting (NP – Poor monitoring, inconsistent discipline and physical punishment) were the outcome variables. Descriptive statistics and proportion of abnormal levels were presented in Table 3.1 (Section 3.6.1).

6.4.2: Study 2

Using the data from Study 2, the independent contribution of child emotional symptoms and maternal depressive characteristics were examined using multiple regressions. Child emotional symptoms and maternal depressive characteristics were the independent variables. Affectionate and Constructive Parenting (ACP – Expansion, lack of criticism, affection, lack of separate play), Negative Expressed Emotion (NEE – Negative initial statement, negative relationship and low warmth),

and Negative Comments (NCom – Negative comments and lack of positive comments) were the outcome variables. Descriptive statistics and proportion of abnormal levels were presented in Table 4.1 (Section 4.6.1).

6.4.3: Study 3

Using the data from Study 3, the independent contribution of child emotional symptoms and maternal depressive characteristics were examined using multiple regressions. Child emotional symptoms and maternal depressive characteristics were the independent variables. Positive Involved Parenting (PIP) and Negative Parenting (NP) were the dependent variables. Descriptive statistics and proportion of abnormal levels were presented in Tables 5.2 and 5.3 (Section 5.6.1.1).

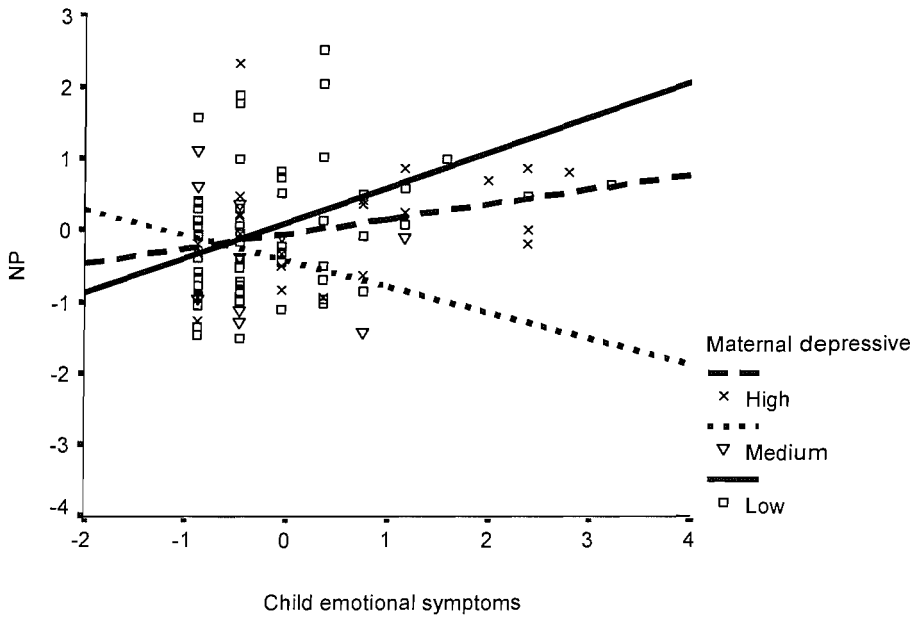
6.4.4: Measures of child emotional symptoms and maternal depressive characteristics

Maternal depressive characteristics were assessed with the General Health Questionnaire (GHQ; Goldberg, 1978, 1982). Emotional symptoms in the child were assessed with the emotional scale of Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). Across studies, the assessment of child emotional symptoms was based on maternal reports. Across studies, the interaction term was calculated by multiplying the standardised values for child emotional symptoms and maternal depressive characteristics. Also, across studies, to plot the interactions, participants were divided on the basis of low, medium and high maternal depressive characteristics (low group < .33 percentile, high group > .66 percentile, and medium group = between the 33 and 66 percentiles).

6.5: Results

6.5.1: Results from Study 1

For PIP, there were no significant main effects or interactions $F(3, 89)= 2.17$, $p > .09$. For NP, the model was significant $F(3, 89)= 4.43$, $p < .01$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2= .10$). There was a significant positive association between child emotional symptoms ($\beta= .37$, $p < .01$) and NP. NP increased as child emotional symptoms increased. This effect was non significant after controlling for child and maternal AD/HD symptoms and child conduct problems ($\beta= .06$, ns). To control for the effects of Positive Involved Parenting hierarchical regressions were conducted. Positive Involved Parenting was entered in the first step, child and maternal emotional symptoms were entered in the second step and the interaction between child and maternal emotional symptoms in the third step. The results revealed that the interaction was non significant ($\beta= -.12$, ns). The effect was represented graphically in Figure 6.1, which shows that for mothers with low and high depressive characteristics, there was a positive slope and a positive association between child emotional symptoms and Negative Parenting. For mothers with low and high depressive characteristics, Negative Parenting increased as child emotional symptoms increased, whereas for the medium group there was a negative slope.



6.1: Association between child and maternal emotional symptoms on NP

Note: NP = Negative Parenting

6.5.2: Results from Study 2

For ACP, there were no significant main effects or interactions $F(3, 175) = .96$, $p > .10$. For NEE the model was highly significant $F(3, 175) = 8.32$, $p < .001$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2 = .11$). There were a significant positive association between child emotional symptoms ($\beta = .26$, $p < .001$) and NEE and between the interaction term ($\beta = -.21$, $p < .01$) and NEE (Figure 6.2). The effect of child emotional symptoms on NEE remained significant after controlling for child AD/HD symptoms and social problems and maternal AD/HD symptoms ($\beta = .23$, $p < .01$). Also, the interaction remained significant after controlling for other child and maternal adjustment problems ($\beta = -.22$, $p < .01$).

To control for the effects of Negative Comments and Affectionate and Constructive Parenting, hierarchical regressions were conducted. Negative Comments and Affectionate and Constructive Parenting were entered in the first step, child and maternal emotional symptoms in the second step, and the interaction between child and maternal emotional symptoms in the third step. The results revealed that the interaction remained significant ($\beta = -.21$, $p < .001$).

Figure 6.2 shows that for the low and medium groups, there was a positive slope and a positive association between child emotional symptoms and NEE. Mothers with low and medium levels of depressive characteristics had more NEE as the levels of child emotional symptoms increased. For the high group, the slope was almost flat. It seemed that for the group with high maternal depressive characteristics, NEE was not influenced by the severity of child emotional symptoms. When the child had low emotional symptoms, it was mothers with high depressive characteristics who had the highest NEE. Therefore, when the child had high emotional symptoms the low and medium groups had the highest NEE.

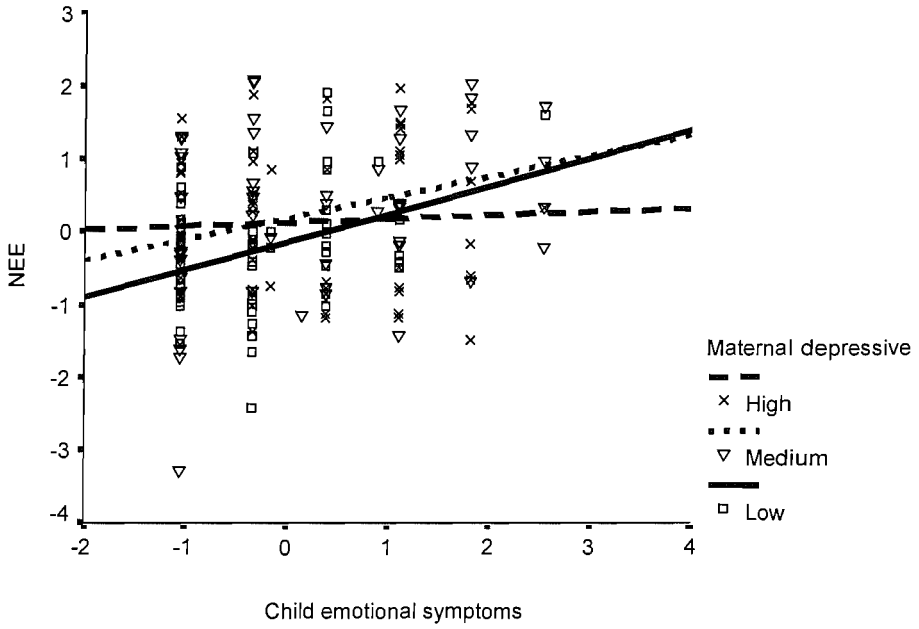


Fig 6.2: Association between child and maternal emotional symptom on NEE

Note: NEE = Negative Expressed Emotion

For NCom, the model was significant $F(3, 175)= 6.03$, $p < .01$, with the combination of predictors accounting for a significant proportion of the variance (Adjusted $R^2= .08$). There were significant positive associations between child emotional symptoms ($\beta= .15$, $p < .05$) and NCom and between maternal depressive characteristics ($\beta= .25$, $p < .01$) and NCom (Figure 6.3). NCom increased as child and maternal emotional symptoms increased. After controlling for other factors, only the effect of maternal depressive characteristics remained significant ($\beta= .14$, $p < .05$). For child emotional symptoms the effect became non significant ($\beta= .09$, ns). To control for the effects of Affectionate and Constructive Parenting and Negative Expressed Emotion, hierarchical regressions were conducted. Affectionate and Constructive Parenting and Negative Expressed Emotion were entered in the first step, child and maternal emotional symptoms in the second step and the interaction between child and maternal emotional symptoms in the third step. The results revealed that the interaction was non significant ($\beta= -.03$, ns). Figure 6.3 shows that for all the groups there was a slight positive slope and a positive association between NCom and child emotional symptoms. Negative Comments increased as child emotional symptoms increased.

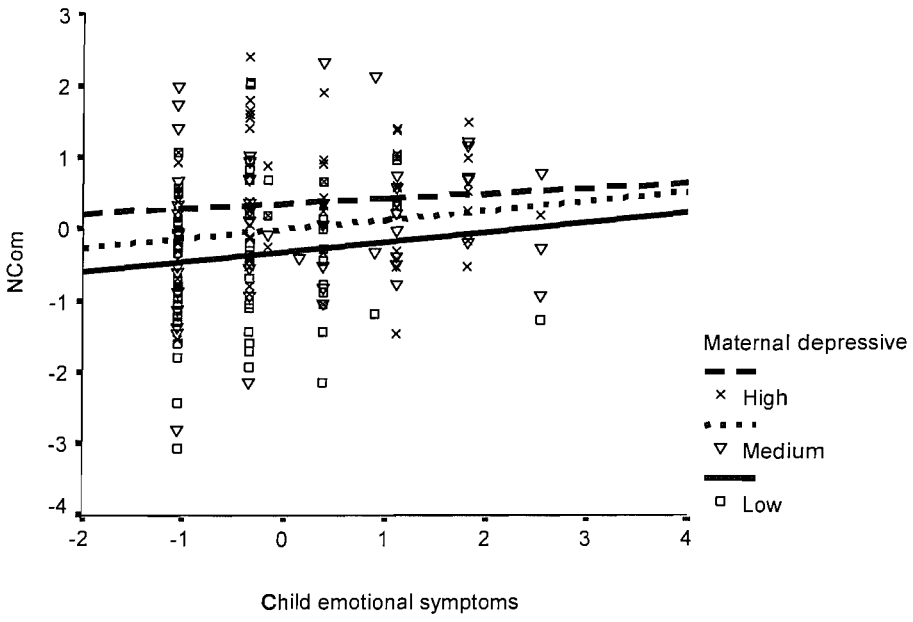


Fig 6.3 Association between child and maternal emotional symptom on NCom

Note: NCom = Negative Comments

6.5.3: Results from Study 3

For PIP, the model was marginally significant $F(3, 264)= 2.57$, $p= .055$ (Adjusted $R^2=. 02$). There was a significant negative association between maternal depressive characteristics ($\beta= -.15$, $p < .01$) and PIP (Figure 6.4). PIP decreased as maternal depressive characteristics increased. After controlling for other child and maternal adjustment problems, this effect was non-significant ($\beta= -.08$, ns). To control for the effects of Negative Parenting, hierarchical regressions were conducted. Negative Parenting was entered in the first step, child and maternal emotional symptoms in the second step and the interaction between child and maternal emotional symptoms in the third step. The results revealed that the interaction was non significant ($\beta= .10$, ns). Figure 6.4 shows that for mothers with high maternal depressive characteristics, there was a positive slope and Positive Involved Parenting increased as child emotional symptoms increased, whereas for the two other groups, there was a negative slope. For NP, there were no significant main effects or interactions $F(3, 264)= 1.76$, $p > .154$.

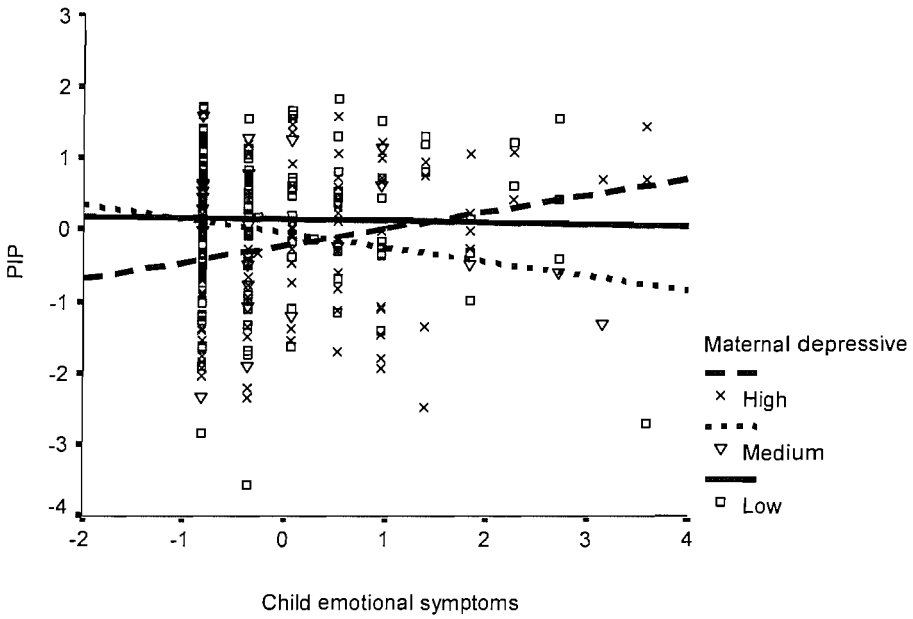


Fig 6.4: Association between child and maternal emotional symptom on PIP

Note: PIP = Positive Involved Parenting

6.6: Discussion

The aim of this chapter was to examine the effects of child emotional symptoms and maternal depressive characteristics and the possible interaction between the two on parenting. The results provided partial support for the predictions. Child emotional symptoms were associated with increased Negative Parenting and components of EE (NEE and NCom), and maternal depressive characteristics were associated with increased NCom and decreased PIP. Interestingly, child emotional symptoms and maternal depressive characteristics interacted with each other in decreasing Negative Expressed Emotion.

6.6.1: Child effects

Results from the three studies revealed that child emotional symptoms were associated with increased maternal NP and NEE (NCom and NEE). Only the effect of child emotional symptoms on Negative Comments was non significant after controlling for child AD/HD symptoms and social problems and maternal depressive characteristics. The significant association between child emotional symptoms and Negative Parenting is consistent with previous studies. Rey (1995) found an association between depression in adolescence and perceived lack of maternal care. In turn, lack of maternal warmth, together with emotional attachment and poor communication was found to increase suicidal behaviour in adolescents (Adams, Overholser & Lehnert, 1994). McFarlane, Belissimo and Norman (1995) found that maternal care had an impact on the sons' well-being and paternal care had an impact on daughters well-being. Gjerde, Block and Block (1991) found that maternal authoritarian parenting such as high levels of control, low levels of affection and support, but still in the context of a positive relationship towards daughters when they were 5 years old predicted dysthymia, when the daughters were 18 years old.

Additionally, child emotional symptoms were found to be consistently associated with maternal EE. This result was found in both pre-school and school age children. This finding is consistent with previous studies, which have identified elevated levels of EE in parents of depressed children and they have well established its predictive validity. For example, high EE was found to predict a poorer course or relapse in 7 to 14 year old children hospitalised for depression, regardless of the initial chronicity or the severity of the disorder (Asarnow et al., 1993). In another study, high EE was inversely related to change in socio-emotional competence in 4 to 13 year old children (Seifer et a., 1992). These findings suggest that EE should be a target of

intervention in order to improve poor prognosis and poor adjustment outcomes for children with emotional/depressive symptoms.

Overall, the results demonstrated significant "child effects" on parenting and measures of EE, but the alternative explanation that the mother has an effect on the child is also possible. Maternal depressive characteristics may bring about high EE, which was found consistently across studies, and it is likely to reflect the hostile and critical attitudes associated with depression. It is also likely that maternal depressive characteristics may trigger an emotional and/or behavioural problem in the child, which a depressed mother has difficulty in dealing with, thereby exacerbating the child problem. Such mutual effects have been found in clinical studies but the results are quite inconsistent in community studies (Compas, Howell, Phares, Williams & Ledoux, 1989). It may be the case that depression influences very severe cases of child behaviour problems (Downey & Coyne, 1990) or that previous cross-sectional studies did not examine adequately mutual influences on parental and child functioning over time. The cross-sectional nature of the design did not allow testing any mutual, reciprocal influences between child emotional symptoms and maternal depressive characteristics. Future studies should aim at disentangling these effects.

6.6.2: Maternal effects

Maternal depressive characteristics were associated with decreased PIP and increased NCom. After controlling for other child and maternal adjustment problems, only the effects of maternal depressive characteristics on NCom remained significant. There is considerable support for the effects of maternal depression on parenting. Meta-analysis revealed that, across studies, mothers with depression display significantly higher levels of negative/hostile and disengaged behaviour and significantly lower levels of positive social interaction (e.g., praise, affection) than non depressed mothers (Lovejoy et al., 2000). Jouriles, Murphy and O' Leary (1989) found that mothers who underwent a negative mood induction had fewer positive statements, were less interactive verbally, and had children who were less compliant than mothers in a positive mood.

Martina and Tamis-LeMonda (2002) found that, during mother-child interactions in a pre-school sample, high maternal depressive symptoms were associated with less maternal sensitivity, engagement, affection and more rigidity and also with less compliance, affection, engagement and gentleness in children. Gordon, Burge, Hamen, Adrian, Jaenicke and Hiroto (1989) observed mother-child discussions and

found that (unipolar) depressed mothers expressed significantly more critical and disconfirmatory remarks and more signs of withdrawal during the interaction.

Furthermore, the results demonstrated that maternal depressive characteristics were positively correlated with NCom. This finding was in line with a study by Nelson, Hammen, Brennan and Ullman (2003), which examined EE as a predictor of adolescent symptomatology and functional impairments in a sample of mothers with varying histories of depression. The results revealed that both critical EE and maternal depression both predicted adolescent externalising symptoms and functional impairment. Furthermore, the study found that critical EE was an intervening factor between maternal depression and child functioning. Other research suggests that maternal depression may have implications not only for parenting but for modalities of treatment as well. Calam, Bolton and Roberts (2002) examined the role of maternal EE, attributions, depression and parenting stress in mothers of children with behaviour problems referred for entry to therapy. They found that the most distressed mothers had the greatest difficulties with parenting and held critical and hostile views of their children and were those who did not attend the therapy sessions.

Interestingly, a recent study by Solantaus-Simula, Punamaki and Beardslee (2002) examined children's behavioural and emotional responses to parental low mood, and the associations of these responses with parental depressive symptoms and the children's own mental distress. They found that children feel for their parents and try to alleviate their suffering. About two thirds of the children made efforts to cheer up their mothers and almost half attempted to cheer up their fathers. They identified four types of children's responses to low parental mood: the active empathy group that tried to help and console parents, the emotional over-involvement group that was prosocial but also was negatively affected by parental low mood, the indifference group that was not aware of parental mood and finally the avoidance group that had low involvement. The children in the active empathy showed empathetic concern and prosocial behaviour and the authors suggested that children in the active empathy group were probably able to discriminate between their own experiences and the parents' experiences.

6.6.3: Child and maternal effects

Child emotional symptoms interacted with maternal depressive characteristics in decreasing NEE. The interaction remained significant above and beyond the contribution of child AD/HD symptoms and social problems and maternal AD/HD symptoms. In Study 2, Figure 6.2 showed that, for mothers with high depressive characteristics, the line was essentially flat meaning that NEE was the same regardless of the severity of child emotional symptoms.

There are a number of explanations that could account for this finding. As it was mentioned in the introduction of Chapter 6 (Section 6.2), depressed individuals have high levels of negative affect such as irritability, distress and anger and they have low levels of positive affect, which is associated with less engagement in social activity (Watson, 1988). It is possible mothers with high depressive characteristics have high levels of negative affect, and they turn their focus on themselves rather than the child. So independently of the severity of the child emotional symptoms, the mother's affect is flat. In other words, mothers with high depressive symptomatology are oblivious to the child behavioural/emotional problems, and they have a level of NEE that maybe reflect their own low/negative mood, which is independent of the child problems. In support of this explanation, previous studies found that mothers with depression are more likely to be emotionally insensitive and less attuned to their infant's emotional state (Cox, Puckering, Pound & Mills, 1987). Puckering (1989) pinpointed that depressed mothers maybe physically present but psychologically absent and unavailable. Depressed mothers may not be able to perceive cues from the child and consequently to build on these.

Another explanation of this significant interaction on NEE is based on the finding that similarity in emotional well being is an important dimension for depressed individuals, as their own mood and self-concept may be affected by comparisons with others whom they perceive to be similarly dysphoric (Brickman & Bulman, 1977; Gibbons, 1986; Wills, 1981). Emotional similarity appears to promote coordinated thoughts and actions, mutual understanding, and interpersonal cohesion and attraction (Hatfield, Cacioppo & Rapson, 1994) and reinforces relationships. When two people feel similar emotions, their own feelings and appraisals are validated (LaFrance & Ickes, 1981; Locke & Horowitz, 1990). In support of this suggestion, Locke and Horowitz, (1990) compared dysphoric and nondysphoric male and female undergraduates during conversation with dysphoric or non-dysphoric undergraduates matched on gender. They found that people in homogeneous dyads were more satisfied with the

interaction, and their satisfaction increased as the conversation proceeded. People in mixed dyads were less satisfied, perceived each other as colder, and spoke about increasingly negative topics. The results revealed that the crucial determinant of interactional satisfaction was the similarity in mood.

It is possible that when mothers with high depressive characteristics interact with their highly emotional disturbed children, they like each other because the reactions of one validate the corresponding reactions of the other (Byrne, 1971; Schachter, 1959). Thus, according to this theory, mothers and offspring with emotional symptoms form a homogeneous dyad and they validate each other's reactions. This validation may make mothers less negative and more satisfied with their interaction. It is also likely that mothers with high depressive characteristics have access to the representation of the disorder and they are better able to understand and feel for their child. There is also some evidence that depressed mothers' parenting is more related to how much they like their child, whereas parenting of mothers without the disorder to a larger extent is predicted by their child-rearing ideology (Kochanska, 1990). Alternatively, there might be the simple and straightforward explanation that women with emotional/depressive symptoms desire to be good mothers and not critical of the offspring. However, it is doubtful how much they can transform non-critical attitudes into good parenting given the symptoms of fatigue, hopelessness, irritability, loss of pleasure that are associated with depression.

Therefore, caution should be exercised in relation to these interpretations. First of all, Figure 6.2 showed that the line was flat and the levels of NEE were the same even when the child had low levels of emotional symptoms, and thus, forming a non-homogeneous dyad with the high-depressed mother that actually contradicts with what was mentioned above. Secondly, the study by Conrad and Hammen (1989) that was described in the introduction of this Chapter (Section 6.2) reported opposite results. Therefore, before reaching any conclusions, the findings need replication in future studies.

6.6.4: Summary of the findings

In summary, it was demonstrated that child emotional symptoms and maternal depressive characteristics are associated with negative aspects of parenting, but, when considered together, they appeared to be associated with decreased NEE. A comparison between emotional and AD/HD symptoms reveals that child and maternal adjustment problems are associated with negative aspects of parenting. For

AD/HD symptoms an interaction was reported for increasing positive parenting and decreasing negative parenting but no significant interactions were reported for emotional/depressive characteristics on these measures. The only significant interaction was found for NEE and it implied that NEE, for mothers with depressive characteristics, is not affected by the severity of child emotional symptoms.

In addition, other issues as mentioned elsewhere in the thesis need investigation such as, the appropriateness of the parenting reported for mothers with AD/HD symptoms or the flat NEE displayed for mothers with high depressive characteristics independent of the severity of child emotional symptoms. Finally, considering inconsistencies for the results presented in the thesis, it is important to treat the findings as tentative, and thus, replicating them in future studies by addressing the methodological limitations.

6.6.5: Methodological considerations

First of all, mothers reported on child emotional symptoms and it is likely that parents who are more depressed tend to distort or exaggerate the severity of their child emotional problems (distortion hypothesis). Therefore, comparisons between maternal reports with behavioural observations and teacher reports have not consistently found that depressed mothers are less accurate in the assessment of their child behaviour in comparison to non depressed mothers (Richters, 1992). Studies have shown that mothers (depressed or not) provide reliable and accurate assessment of child psychopathology, and that depressed mothers are not significantly biased to report child symptoms that had not occurred (Faraone & Tsuang, 1995; Querido, Eyberg & Boggs, 2001). Nonetheless, other sources of method variance (e.g., social desirability) may have inflated associations between maternal mood and child adjustment problems.

Another limitation was that, in all the three studies, maternal depressive characteristics were as assessed with the General Health Questionnaire, and self-reports of depression may not always correspond with the criteria for depression as assessed with the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) and the Research Diagnostic Criteria (Spitzer, Endicott & Robins, 1978). These diagnostic systems define depression by the presence of symptoms in addition to their duration and exclusionary criteria, both of which are not included in self-report measures (Boyd, Weissman, Thompson & Myers, 1982). Although it is likely that mothers might had elevated scores on the

General Health Questionnaire, it might not have met the criteria for a depressive disorder. Thus, it is likely that different results would be obtained in a sample of mothers with depression. Also, an interaction term was created between child emotional symptoms and maternal depressive characteristics therefore these symptoms might not tap the same problem in the child and the parent.

Finally, this chapter, for consistency and clarity of presentation, was focused on mothers but it should be acknowledged that the mother-child relationship does not develop in a vacuum and fathers seem to play an important role. Overall, previous studies show that children of depressed fathers are less studied and the existing studies show fewer deficits in psychosocial adjustment in comparison to children of depressed mothers (Keller, Beardslee, Dorer, Lavori, Samuelson & Klerman, 1986). For example, Lavori, Keller, Beardslee and Dorer (1988) found a six-fold increase in the risk for child internalising disorder associated with maternal affective disorder, and a three-fold increase in risk associated with paternal affective diagnosis. Klein, Clark, Dansky and Margolis (1988) found that children of mothers with affective disorders were at significantly greater risk for psychiatric disorders relative to a comparison group, whereas comparisons with fathers did not yield significant group differences.

Therefore, there is a lot of evidence that depressed individuals tend to choose partners and are more likely to have children with men who have a psychiatric illness or family history of psychopathology (Merikangas & Spiker, 1982). When a depressed person's spouse is also depressed, the risk of marital disharmony and divorce is increased (Merikangas, 1984) and, as a consequence, this assortative mating put the offspring at an elevated risk for developing the disorder (Merikangas, Weissman, Prusoff & John, 1988) due not only to genetic loading of having two parents with depression, but also due to the stressful environment when both parents are suffering from psychiatric illness.

Finally, it is important for future studies to replicate the same research in more diverse sample samples because meta-analysis by Lovejoy et al., (2000) reported that very young children and children who are economically disadvantaged face the greatest risk of experiencing inadequate or aversive parenting by their depressed parents.

Chapter Seven: General Discussion and Implications of the Findings

7.1: Overview of Chapter 7

The final chapter of the thesis attempts to integrate the findings from all the studies. The chapter sums up all the findings relating to AD/HD in addition to emotional symptoms/depressive characteristics. Also, the chapter reports the methodological limitations of the studies and suggests ways of overcoming them in future studies. This final chapter also considers the contribution of the findings to the understanding of parental AD/HD symptoms when examining the parenting of the child with high AD/HD symptoms and also suggests how these findings could be used to inform the development of parent-training programmes for families with AD/HD. Finally, the chapter highlights a few suggestions for the development of parent-training programmes for families with emotional/depressive characteristics. It concludes with a few words about future directions.

7.2: Summary of the Main Findings

The next sections summarise the results found across the three studies into AD/HD symptoms and also for emotional/depressive characteristics. The child effects are presented first, followed by parental effects and then the significant interaction between Child X Parent effects in predicting measures of parenting and empathy:

7.2.1: Child effects

Child AD/HD symptoms were found to be consistently and positively associated with Negative Parenting. This effect was replicated in pre-school and school aged children, using quantitative and observational data and across mothers, fathers, and teachers reports on child AD/HD symptoms. Importantly, this effect remained significant in some cases after controlling for other child and parental adjustment problems. It seems that the association between child AD/HD and Negative Parenting is a robust and well replicated finding and it is in line with previous studies which demonstrate that child AD/HD symptoms are associated with negative parenting practices (Stormshak et al., 2000; Keown & Woodward, 2002). Also, the results of the thesis demonstrated that child AD/HD symptoms were positively associated with maternal CRIT and EOI (components of EE) in a school age sample but the association between child AD/HD symptoms and CRIT appeared less robust,

as it was not significant after controlling for child and maternal emotional symptoms/depressive characteristics and conduct problems/anti-social characteristics, respectively. Also, it was not replicated when teachers or fathers reported on child AD/HD. Therefore, the association between child AD/HD symptoms and EOI remained significant after controlling for other child and maternal problems. In a similar way, in Study 2, the results demonstrated positive trends between child AD/HD symptoms and Negative Expressed Emotion and child AD/HD symptoms and Affectionate and Constructive Parenting.

Unfortunately, in Study 3, the small sample size of fathers did not allow testing the association between child AD/HD symptoms and paternal EE. It is important that future studies attempt to address this limitation and collect data from both parents. Possibly there are differences between mothers and fathers in the levels of EE they display and the ways they affect child adjustment. For example, maternal warmth, a component of the Pre-school Five Minutes Speech Sample (Daley et al., 2003) was found to predict child emotional adjustment whereas paternal warmth predicted school achievement (Chen, Liu & Li, 2000). Also, it is likely that children display differences in their cognitive, affective, and physiological reactions towards maternal and paternal EE. Furthermore, for Empathy and Personal Distress, there were no significant main effects for mothers and fathers and across reporters. It is possible that child AD/HD symptoms do not bring any effects on measures of Empathy or maybe the lack of the effects were due to the particular sample that was used in study 3.

Furthermore, the thesis examined the association between child emotional symptoms and parenting. The analysis revealed that child emotional symptoms were positively associated with Negative Parenting in a school age sample but this effect was non-significant after controlling for child and maternal AD/HD symptoms and conduct problems/anti-social characteristics, respectively. Also, child emotional symptoms were positively associated with Negative Expressed Emotion and Negative Comments in a pre-school sample but only the effect of child emotional symptoms on Negative Expressed Emotion remained significant after controlling for other child and maternal adjustment problems.

In summary, the results of the thesis suggest that child adjustment problems are associated with Negative Parenting and Components of EE. Therefore, it is worth mentioning that the design of the studies did not allow us to disentangle cause-

effects relationships. It is likely that child problems cause parents to adopt negative parenting practices but it is also likely that negative and inadequate parenting leads to child adjustment problems.

7.2.2: Parental effects

The results demonstrated significant associations between maternal AD/HD symptoms and parenting but not significant associations were found between paternal AD/HD symptoms and parenting. The non-significant results for fathers might be due to the small sample size, and thus, lack of statistical power. It might be useful if future studies investigate the effects of paternal AD/HD symptoms on parenting with larger samples.

In detail, the results demonstrated that maternal AD/HD symptoms were negatively associated with Positive Involved Parenting in a school age sample. This effect was also replicated when teachers reported on child AD/HD symptoms (Study 3). Importantly, this effect remained significant in many cases above and beyond the contribution of other child and maternal adjustment problems. Previous studies have also documented the negative effects of maternal AD/HD on parenting (Evans et al., 1994; Harvey et al., 2003). Furthermore, maternal AD/HD symptoms were positively associated with Negative Expressed Emotion and marginally with Negative Comments in a preschool sample. Therefore, only the effect of maternal AD/HD on Negative Expressed Emotion remained significant after controlling for other factors. Also, maternal AD/HD symptoms were associated with Negative Parenting based on teacher report on child AD/HD but this effect became non significant after controlling for other factors. None of these effects were replicated when fathers were the source of information but the lack of significant effects may be due to the small number of fathers who took part in the study.

Furthermore, significant associations were found between maternal AD/HD symptoms and measures of Empathy. Specifically, maternal AD/HD symptoms were negatively associated with Empathy. This effect was replicated when mothers and teachers reported on child AD/HD symptoms, but it became non-significant after controlling for child and maternal adjustment problems. Also, significant and positive associations were found between maternal AD/HD symptoms and Personal Distress when mothers, teachers and fathers were the reporters, but no significant associations were found between these measures and paternal AD/HD symptoms.

With regard to emotional symptoms/depressive characteristics, maternal depressive characteristics were positively associated with Negative Comments in a preschool sample and this effect remained significant after controlling for other factors. Furthermore, maternal depressive characteristics were negatively associated with Positive Involved Parenting but this effect became non significant after controlling for other factors. These results are consistent with a meta-analysis by Lovejoy et al., (2000) which highlighted the negative effects of maternal depression on parenting.

Overall, the results showed, as expected, that maternal psychopathology was associated with negative parenting and decreased empathy. These effects were as expected, and in line with previous studies. The non significant associations between paternal psychopathology and parenting and paternal psychopathology and empathy might be due to the small sample size. Therefore, it is important future studies to include a larger number of fathers in order to increase the statistical power.

7.2.3: The interaction of child and parental characteristics

In all the three studies, significant interactions were found between child and parental AD/HD symptoms in predicting parenting, components of EE and Personal Distress and between child and maternal emotional symptoms/depressive characteristics in predicting Negative Expressed Emotion. In particular, the results showed that:

(1) Child and maternal AD/HD symptoms interacted with each other in increasing Positive Involved Parenting. This result came from Study 1, which was based on a quantitative study of 95 mothers in a school-age sample. The interaction remained significant above and beyond the contribution of child and maternal emotional symptoms/depressive characteristics, respectively and child conduct problems.

(2) Child and maternal AD/HD symptoms interacted with each other in increasing Affectionate and Constructive Parenting. This result was found in Study 2 which was an observational study based on a sample of 192 mother-child dyads during a play interaction with pre-school children. The interaction remained marginally significant after controlling for child and maternal emotional symptoms/depressive characteristics, respectively and child social problems.

(3) Child and maternal AD/HD symptoms interacted with each other in decreasing Negative Parenting. This result was found in Study 3, which was a quantitative study of 277 mothers of school age children. The interaction remained significant after

controlling for child and maternal emotional symptoms/depressive characteristics and conduct problems/anti-social characteristics, respectively. However, the interaction was not significant when teachers and fathers reported on child AD/HD symptoms. It is worth mentioning that the plotted interaction based on teachers' reports on child AD/HD symptoms had quite the same pattern as when mothers were the reporters (mothers with low AD/HD symptoms had more NP for the child with high AD/HD symptoms). It is likely that for teachers there was not enough power or variance for the interactions to be significant. However, a different pattern emerged when fathers were the reporters implying some inconsistency and highlighting the need for replication of this finding in future studies.

(4) Child and paternal AD/HD symptoms interacted with each other in increasing Negative Parenting. This result came from Study 3, which was based on a sample of 86 fathers of school age children. The interaction remained significant after controlling for child and paternal emotional symptoms/depressive characteristics and conduct problems/anti-social characteristics, respectively. Therefore, caution is required regarding the validity of this interaction, as it was not replicated when teachers and mothers reported on child AD/HD symptoms and the plotted lines were different across reporters. The inconsistencies might be due to differences in sample sizes or maybe it is an issue of self-reporting bias, and thus, highlighting the need for replication.

(5) Child and maternal AD/HD symptoms interacted with each other in increasing EOI. This result was found in Study 3 in a sample of 51 couples where fathers reported on child AD/HD symptoms for the analysis of mothers. The interaction was not significant after controlling for child and maternal emotional/depressive characteristics and conduct problems/anti-social characteristics, respectively. The plotted interaction revealed that it was the group with low maternal AD/HD symptoms who were more emotionally over-involved with the child with high levels of AD/HD symptoms. The interaction was not significant after controlling for other factors. When mothers reported on child AD/HD symptoms, the interaction was not significant but again the plotted interaction showed that it was mothers with low AD/HD symptoms who had more EOI for the child with high AD/HD symptoms. When teachers were the reporters, there were no significant main effects or interactions.

(6) Child and maternal AD/HD symptoms interacted with each other in decreasing maternal Personal Distress. The interaction remained significant above and beyond

the contribution of child and maternal emotional symptoms/depressive characteristics and conduct problems/anti-social characteristics, respectively. When teachers reported on child AD/HD symptoms, the interaction was not significant but the plotted effects were consistent with maternal reports on child AD/HD symptoms. When fathers were the reporters, the interaction was again significant and remained marginally significant after controlling for other factors. The Figure showed that for the high maternal AD/HD group the line was essentially flat whereas there was a positive slope for low group and especially for the medium group.

Furthermore, the results revealed a significant interaction between child emotional symptoms and maternal depressive characteristics in predicting Negative Expressed Emotion:

(7) Child emotional symptoms and maternal depressive characteristics interacted with each other in decreasing Negative Expressed Emotion. This result was found in Study 2 in a pre-school sample. The interaction remained significant above and beyond the contribution of child and maternal AD/HD symptoms and child social problems. The plotted interaction revealed that for mothers with high depressive characteristics the levels of Negative Expressed Emotion they displayed was independent of the severity of the child emotional symptoms.

Overall, the current thesis demonstrated significant associations between AD/HD symptoms and parenting. These findings were as expected and in line with previous studies. Most importantly, the thesis demonstrated that maternal AD/HD symptoms did not exacerbate the effects of child AD/HD symptoms on parenting and paradoxically the mother-child similarity in AD/HD status seemed to have a rather positive effect on parenting. Specifically, the first two studies showed that mothers with high AD/HD symptoms were more positive and affectionate for the child with high AD/HD symptoms, whereas, in Study 3, it was found that mothers were less negative. It is important to bear in mind that, in Study 3, some of the participants were drawn from AD/HD support groups. That means some mothers were likely to have severe AD/HD symptoms and maybe find it difficult to cope with the disorder either in the child or in them. Therefore, even in this sample, the results demonstrated that maternal Negative Parenting decreased. Therefore, these studies did not answer the question whether this style of parenting found for the mothers with high AD/HD symptoms is appropriate for the child with high AD/HD symptoms. Also, the significant interactions found in the three studies did not contradict each other

but, however, they were not replicated when other reporters were used and therefore did not reconcile the issue of self-reporting bias.

Also, the thesis revealed that paternal AD/HD symptoms acted in a cumulative way and increased negative parenting for the child with high AD/HD symptoms and, therefore, the child-father similarity in AD/HD status acted as a "risk" factor. This finding is in line with previous studies, which have found similar results and additionally reported a resistance to change after participation in a parent-training programme (Arnold et al., 1997; Harvey et al., 2003). The present and previous studies suggest the children of fathers with high AD/HD symptoms might be in a risky environment that can exacerbate adjustment problems and, therefore, need to be a target for interventions.

Furthermore, with regard to maternal depressive characteristics, it was found that mothers with high depressive characteristics express the same level of Negative Expressed Emotion regardless of the severity of child emotional symptoms. This interaction is more in line with the interaction found for maternal AD/HD symptoms, but it is premature to say that a similarity between child-mother in psychopathology implies positive outcomes. First of all, there were no significant interactions for emotional/depressive characteristics in predicting positive and/or negative parenting as it was found for AD/HD. Secondly and most importantly, the significant interaction for depressive characteristics might reflect that mothers with high depressive characteristics are oblivious to the child adjustment problems and that the Negative Expressed Emotion towards the child might reflect the hostility and negativity that is characteristic of depression (American Psychiatric Association, 1994).

Certainty these findings are very novel and preliminary in nature and they need replication in future studies. It is worth examining if the same results are found for other adjustment problems such as conduct problems in the child and anti-social characteristics in the parent. It can be predicted that conduct problems might represent more severe behavioural problems that overpower mothers and taxes their recourses, thus, making it difficult for mothers to cope with the situation. It is also likely that conduct problems are embedded in an array of broader problems that add with each other in a cumulative way.

7.3: Methodological Limitations of the Studies

Some methodological limitations of the studies were identified, and measures to overcome them are discussed in the following sections:

7.3.1: Self-assessment of AD/HD in adults

An important methodological limitation across the three studies was that the assessment of AD/HD symptoms in the parents relied on self-reports and such an assessment might be considered problematic. A better option would be to obtain information from another informant, such as a parent or employer. The collection of such data was not practical because of the time constraints for the completion of the present thesis. An alternative option would be to ask husbands to rate their wives AD/HD symptoms and vice versa. However, this option would reduce the sample size significantly, as in many cases, the fathers were not available. For example, in Study 3, there would be only 86 or even fewer fathers who would complete questionnaires for their wives' AD/HD symptoms, and therefore, it would create problems with statistical power for detecting significant effects. Another option would be to identify a friend/significant other to rate the participant's AD/HD symptoms. This would be a feasible and easy to implement option as most people should be able to identify someone who can assess their behaviour. Indeed, Daley, Fearon, Birchwood and Hoeger (in preparation) found very high response rates and high correlations between the Adult AD/HD Rating Scale (AARS; Barkley & Murphy, 1998) and the questionnaire completed by a friend. In conclusion while it would be ideal to have an objective informant of adults' AD/HD symptomatology as was mentioned elsewhere in the thesis (Section 3.7.4), adults seem able to give a relatively accurate account of their AD/HD symptoms (Murphy & Schachar, 2000) and most importantly their account of their AD/HD symptoms appears not to be influenced by having a child with AD/HD (Faraone at al., 1997).

7.3.2: Use of maternal reports of mother and child behaviour

A second potential limitation of the thesis was that in Study 1, all the data about child and maternal characteristics were based on maternal reports. Mothers reported on the child and their own AD/HD symptoms as well as their parenting by completing a battery of questionnaires. As a consequence such data might suffer from "common variance" and results might be biased by inflated correlations between the measures. This limitation was addressed partly in Study 2, where observers independently rated parenting. However, in this study the assessment of the child's AD/HD symptoms

was based on maternal reports. This limitation was addressed in Study 3, where teachers gave information about the child's AD/HD symptoms. However, there were a relatively small number of teachers who took part in the study. This small sample size might limit the variance and might explain the non-significant interactions when teachers reported on child AD/HD symptoms. Attempts to increase the sample size were made. Specifically, head teachers were contacted and kindly reminded about the study and the importance of their reports. A financial contribution was offered to each school as recognition of their participation. Finally, detailed and extensive information were provided when teachers asked for clarifications about AD/HD. This information was supplied mainly by AD/HD support groups.

Another attempt to address the issue of self-reports was made in Study 3, where there were 51 couples that completed questionnaires for the same child. This meant that the mothers' accounts of child AD/HD symptoms was used in the analysis of fathers and the vice versa, although this sample size was small and might explain the non-significant interactions.

Future studies would be improved if they (1) use independent reporters of child AD/HD symptoms, such as teachers and/or parents, (2) use independent reporters of adult AD/HD symptoms, such as parents, spouses, significant others, employers and (3) reply on more objective measures of parenting such as observational data rather than questionnaires that may suffer from social desirability bias and other personal biases.

7.3.3: Inconsistencies of results across reporters

In Study 3, child AD/HD symptoms were assessed by three sources: mothers, fathers and teachers in order to reduce any potential self-rating bias. However, the results did not appear to reconcile this issue, as there were some inconsistencies in the findings relating to the effects of mother and child AD/HD symptoms on parenting. For example, when fathers reported on child AD/HD symptoms, Figure 5.5 showed that, for fathers with medium and high levels of AD/HD symptoms, there was a positive association between child AD/HD symptoms and Negative Parenting whereas for the group with low paternal AD/HD symptoms the line was almost flat. When teachers reported on child AD/HD symptoms, Figure 5.6 showed that, for all the three paternal AD/HD groups (with high, medium and low), there was a positive slope and positive association between child AD/HD symptoms and Negative Parenting. Finally, when mothers reported on child AD/HD symptoms, again in all the

three groups of paternal AD/HD symptoms, there was a positive slope and a positive association between child AD/HD and Negative Parenting. Therefore, it was the group with low paternal AD/HD symptoms, which displayed the most Negative Parenting.

One explanation could be that the sample of teachers and paternal reports did not capture the range of AD/HD symptomatology that might lead to significant interactions. On the other hand, the inconsistencies might indicate that the phenomenon of parent-child similarity in predicting measures of parenting is the outcome of self-reporting bias, and therefore, caution should be exercised in interpreting the findings in this thesis. The issue might be solved if future studies replicate the findings by using various sources of information coupled with the use of larger samples.

7.3.4: Size of the effects

Despite the fact that many interactions were not replicated when independent reporters of child AD/HD symptoms were used, it is important to state that the results revealed a pattern. Mothers with AD/HD symptoms are more positive/and less negative in their parenting and less personally distressed for the offspring with high AD/HD symptoms compared with mothers with low levels of AD/HD symptoms. These results appear important for the development of models for mother-child relationship and for the improvement of parent-training programmes. However, it must be acknowledged that in all the three studies, the size of the effects of the interactions was small or medium. This implies that in a parent-training programme they would not bring any significant and dramatic change. It is likely that there are factors that were not examined in the thesis that they may make a more substantial contribution.

7.3.5: Cross-sectional design of the studies

The variables assessed were all measured at one point in time and the cross-sectional nature of the design precluded the possibility of determining cause-effect relationships. For example, as it was mentioned elsewhere in the thesis, it is likely that the child difficult behaviour causes parents to adopt negative parenting practices, but it is also likely that parental ineffective parenting exacerbates the child existing problems and/or results in the development of comorbidity. Therefore, testing causal relations are not possible through cross-sectional studies. In contrast, longitudinal research makes an invaluable and unique contribution to an understanding of causal

and reciprocal relations within families with AD/HD, and indeed, longitudinal research on AD/HD and parenting is critical if questions of causation are to be adequately addressed.

7.3.6: Family background factors

Finally, the studies presented in the thesis did not control for background factors such as age of children (Study 2), age of parents, parental education and occupational functioning. However, these factors could have influenced the results. Studies suggest high levels of inattentiveness and hyperactivity in children from low socio-economic backgrounds (Carlson et al., 1995; Shaw, Winslow, Owens, Vondra, Cohn & Bell, 1998) whereas other studies demonstrate that socioeconomic status acts as a moderator to child adjustment and treatment outcomes (Rieppi et al., 2002).

7.4: Implications of the Findings for Parent-Training Programmes

Rutter (1990) has clearly stated that transmission of psychopathology from one generation to another may be interrupted with an assessment and treatment for both parents and children. Consistently, the studies presented in the thesis revealed significant main effects of child and parental psychopathology and also significant interactions between the two in predicting measures of parenting. The findings suggest that models of treatment for the child with AD/HD might need to focus not only on the child but on the parent as well.

Specifically, the present thesis highlights that, for AD/HD, it appears important to consider parental AD/HD symptoms in the design and implementation of treatment strategies, especially where parent training is a core feature. In a recent study, it was found that parent training for pre-schoolers was far less effective when mothers themselves had high levels of AD/HD symptoms (Sonuga-Barke et al., 2002). It appeared that parents with AD/HD symptoms had difficulty implementing the sort of structured and organised approach to parenting required for the management of AD/HD. At first sight, the results of the studies seem to stand in contrast to the findings. However, these two sets of findings can be reconciled if it is recognised that positive parenting, as displayed by high scoring AD/HD mothers, is independent of the other qualities of a parent required for the effective management of AD/HD children. It is even possible that an overly affectionate positive approach to the AD/HD child displayed by their mother may represent a barrier to effective and

consistent discipline and the imposition of clear boundaries. More research is needed to explore the implications of these parenting characteristics on the intervention and outcome of children with AD/HD.

The thesis also highlights the importance of considering AD/HD symptoms in fathers as they were found to exacerbate the negative effects of child AD/HD symptoms on parenting. It is also crucial to follow-up the effects of parent-training programmes as Harvey et al., (2003) reported use of lax discipline even after participation in a parent-training programme. Also, parent-training programmes might have to consider the overall family functioning. For example, it was mentioned in the discussion of Chapter 5 (Section 5.7.3.1), that, if the child experiences a family environment with opposing messages from the mother and father, the child might be caught up between the two and this enmeshment might lead to adjustment problems.

In a similar fashion, in families with child emotional symptoms and maternal depressive characteristics, it is important that parent-training programmes target equally both child emotional symptoms and maternal depressive characteristics. As far as their joint effects are concerned, maybe research needs to test the hypothesis whether the flat levels of Negative Expressed Emotion found in mothers with high depressive characteristics are due to the fact that depressed mothers turn their focus on themselves rather than on the child and that their self-preoccupation make them oblivious to the child psychopathology.

7.5: Future Directions

This thesis examined the effects of child and parental AD/HD symptoms on parenting and it demonstrated that child and maternal AD/HD symptoms interacted with each other in increasing positive parenting and decreasing negative parenting as well as decreasing maternal personal distress. Overall, the findings of the thesis established that maternal AD/HD symptoms did not exacerbate the negative effects of child AD/HD symptoms on parenting. In contrast, paternal AD/HD symptoms acted in a cumulative way and they exacerbated the negative effects of child AD/HD symptoms on parenting.

Furthermore, the thesis examined whether the effects of mother-child similarity in AD/HD symptoms generalise to child emotional symptoms/maternal depressive characteristics. The results revealed that the mother-child similarity in

emotional/depressive characteristics decreased Negative Expressed Emotion. Indeed, mothers with high emotional symptoms demonstrated the same levels of NEE independent of the severity of child emotional symptoms. The thesis demonstrates that there is some evidence that could support the idea that the child-parent similarity in psychopathology might be associated with some positive effects.

Given the paucity of research into adult AD/HD, the novelty of the findings of the thesis, and its implications for clinical practice it will be helpful if future studies do the following:

(1) Replicate the findings across different samples and different methodologies. In the present thesis, parenting was examined with questionnaires and observations of mother-child interactions during play interactions. As it has already been mentioned, questionnaires might suffer from social desirability and other respondent's bias and play interactions are an unstructured task, which places low demands on the child. It might be useful if future studies examine interactions during a structured task (such as construction/assembly tasks, storybook reading, and other non-academic tasks) and then analyse how parents with AD/HD might assist their AD/HD children during problem solving.

It might be useful to apply the construct of scaffolding in analysing these interactions. Scaffolding is defined as a facilitated process during which an adult or expert enables a child or novice to solve a problem, carry out a task, or achieve a goal that would be beyond his or her unassisted efforts (Wood, Bruner & Ross, 1976). This process implies that the parent understands what components of the overall task the child with AD/HD is capable of doing without any help, what components the child with AD/HD is capable of understanding, but cannot accomplish without help, and what components are beyond the child's understanding and ability.

Some recent research demonstrated that children of parents who engage in playful and positive interactions and effectively scaffold and motivate their children's attention and self-organisation during these interactions show a developmental advantage over the children of parents who do not (Wacharasin, Barnard & Spieker, 2003; Connell & Prinz, 2002). Up until now, studies have examined the effects of child AD/HD on scaffolding. Winsler (1998) investigated parent-child interactions and scaffolding during joint problem solving in 19 boys with AD/HD and 20 matched controls. The results demonstrated that parents of boys with AD/HD, compared to

controls, used more negative verbal control strategies, engaged in poorer quality scaffolding, and withdrew adult control less during collaboration. Also, boys with AD/HD were more off-task and noncompliant than control boys. Therefore, there are no studies that have examined parent-child dyads in which both child and the parent have AD/HD.

Some parental behaviours during the interaction that might be of interest might include cognitive support or the extent to which parents give instructions in small, manageable steps and review the steps of the task and discuss progress to the overall goal of the task. For example, during cognitive support parents might help the child to orient to the task by joint parent-child attention and orientation to the task. Also, during the scaffolding interaction, parents might provide meta-cognitive support. For example, parents might provide task management techniques, strategies, or the rationale for using a particular strategy and feedback about the child's ongoing performance. Tenenbaum and Leaper (1998) found that telling the child the correct answer following the child's incorrect answer as a good scaffolding strategy, and that children whose mothers correct their story telling, perform at higher levels than those mothers who do not (McCabe & Peterson, 1991).

Finally, parents might increase autonomy by encouraging the child's autonomy by using questions, prompts and hints while providing assistance rather than simply stating the answer, directing the child's actions, or doing the task for the child. For example, the parent asks questions and offers such explanations and elaborations that stimulate the child to think of and articulate new solutions and further ideas (Cazden, 1988).

Hypothesis pertaining to dyadic interactions that are drawn from the results of the present thesis might be that, when AD/HD parents interact with their AD/HD children, they may function better as a dyad and these parents may provide a lot of emotional support during the joint problem solving activity. Therefore, it is worth stating clearly that even if significant interactions between Child X Parental AD/HD status are found in predicting positive outcomes, this does not mean that it is helpful for the child adjustment. As it was mentioned elsewhere in the thesis (Section 4.7.3), the increased positive parenting of mothers with AD/HD might prevent the child with AD/HD from developing appropriate self-regulation abilities, and thus, undermining child development. On the other hand, the other possibility that it might prevent

comorbidity and/or attenuate existing problems is not excluded but definitely these predictions need testing by using longitudinal designs.
(2) If significant interactions are found between Child X Parent AD/HD status in predicting parental behaviours, the next step is to uncover the mechanisms that account for the associations. Possible moderators that maybe worth examining in the future might be:

(a) Parental ability to understand what the child feels and thinks. Empathy was investigated in Study 3, and the analysis demonstrated a significant interaction between Child X Maternal AD/HD symptoms in decreasing Personal Distress, and consequently, this variable needs more detailed investigation. As it was mentioned in the discussion of Study 3 (Section 5.7.4), empathy was measured by self-reports that might suffer from a number of disadvantages. In the future, a more elegant way would be to measure parental empathy through observations. For example, parents can watch vignettes in which a protagonist who is supposed to enact the role of the participants child is in a difficult situation and parents are asked an array of questions, such as their emotional responses to the videotaped stimuli and their intensity of their emotions, their accurate recognition of protagonist's emotions, and the provision of reasons of their emotion.

(b) Another variable that might be worthy of examination is parental levels of tolerance for the child misbehaviour. Parental tolerance can be defined as the extent to which a parent tends to be annoyed by child difficult behaviour. This attitude can reflect a discrepancy in what is normative, and annoyance by child misbehaviour can vary from neutral levels of tolerance, to levels of extreme tolerance or intolerance for child difficult behaviour. Identifying the role of tolerance could have significant contributions to clinical practice. For example, parents who regard child behaviour problems as "deviant" might benefit from traditional parent training. Parents with extreme levels of low or high tolerance for child difficult behaviour might need a parent training programme that deals with parental perceptions of child behaviour in addition to parent training techniques. Longitudinal designs might be used to detect changes over time once the family is engaged in therapy.

(c) Finally, future studies can examine parental dispositional and personality traits as parents with AD/HD who are more positive toward their child with AD/HD might differ in personality traits from parents who are not. Nietzel and Stright (2004) examined child temperament, parent openness to experience and education and parent

assessment of the task in relation to parenting behaviours during problem solving. They found that more educated mothers provided more meta-cognitive information. Mothers who perceived their children as difficult and who were less open to experiences were less likely to regulate task difficulty, encourage their children's efforts and encourage their children's active role in problem solving. Children perceived as difficult were most likely to be rejected and were more likely to be rejected if the mother was highly conscientious. Conscientious mothers were likely to be overly controlling.

(3) If the findings are replicated across methodologies, they can be translated into current practice for families with AD/HD. Therefore, to have applicability, future research should identify the possible moderators and then train the parents to use the relevant skills in their parenting for their child with high AD/HD symptoms.

7.6: Concluding Remark

The present studies demonstrated that maternal AD/HD symptoms do not seem to exacerbate the negative effects of child AD/HD on parenting. There was some evidence that the mother-child similarity in AD/HD status predicted more positive and less negative parenting. In contrast, paternal AD/HD acted in a cumulative way and exacerbated the negative effects of child AD/HD on parenting. Future studies should replicate these findings addressing the limitations of the three studies reported in the present thesis.

References

Abikoff, H., Courtney, M., Pelham, W.E., & Koplewicz, H.S. (1993). Teachers' ratings of disruptive behaviors: The influence of halo effects. *Journal of Abnormal Child Psychology, 21,* 519-533.

Achenbach, T.M. (1991). *Manual for Child Behaviour Checklist/4-18 and 1991 profile.* Vermont: Department of Psychiatry, Vermont.

Achenbach, T.M., McConaughy, S.H., & Howell, C.T. (1987). Child/adolescent behavioral and emotional problems: Implication of cross-informant correlations for situational specificity. *Psychological Bulletin, 101,* 213-232.

Acitelli, L.K., Kenny, D.A., & Weiner, D. (2001). The importance of similarity and understanding of partners' marital ideals to relationship satisfaction. *Personal Relationships, 8,* 167-185.

Adams, D.M., Overholser, J.C., & Lehnert, K. (1994). Perceived family functioning and adolescent suicidal behavior. *Journal of the American Academy of Child and Adolescent Psychiatry, 33,* 498-507.

Alessandri, S.M. (1992). Attention, play, and social behavior in AD/HD preschoolers. *Journal of Abnormal Child Psychology, 20,* 289-302.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders (4th ed.).* Washington, DC: Author.

Anastopoulos, A.D., Guevremont, D.C., Shelton, T.L., & DuPaul, G.J. (1992). Parenting stress among families of children with attention deficit hyperactivity disorder. *Journal of Abnormal Child Psychology, 20,* 503-520.

Anderson, C.A., Hinshaw, S.P., & Simmel, C. (1994). Mother-child interactions in ADHD and comparison boys: relationships with overt and covert externalizing behavior. *Journal of Abnormal Child Psychology, 22,* 247-265.

Applegate, B., Lahey, B.B., Hart, E.L., Waldman, I., Biederman, J., Hynd, G.W., Barkley, R.A., Ollendick, T., Frick, P.J., Greenhill, L., McBurnett, K., Newcorn, J., Kerdyk, L., Garfinkel, B., & Shaffer, D. (1997). Validity of age of onset criterion for ADHD: A report of the DSM-IV field trials. *Journal of the American Academy of Child and Adolescent Psychiatry, 36,* 1211-1221.

Arnold. E.H., O' Leary, S.G., & Edwards, G. (1997). Father involvement and self-reported parenting of children with attention deficit-hyperactivity disorder. *Journal of Consulting and Clinical Psychology, 65,* 337-342.

Asarnow, J.R., Goldstein, M.J., Tompson, M., & Guthrie, D. (1993). One-year outcomes of depressive disorders in child psychiatric in-patients: evaluation of the prognostic power of a brief measure of expressed emotion. *Journal of Child Psychology and Psychiatry, 34,* 129-137.

Baker, B.L, & Heller, T.L. (1996). Preschool children with externalizing behaviors: Experience of fathers and mothers. *Journal of Abnormal Child Psychology, 24,* 513-532.

Baker, D.B. (1994). Parenting stress and ADHD: A comparison of mothers and fathers. *Journal of Emotional and Behavioral Disorders, 2,* 46-50.

Barkley, R.A., Fischer, M., Smallish, L., & Fletcher, K. (2002). Persistence of attention deficit hyperactivity disorder into adulthood as a function of reporting source and definition of the disorder. *Journal of Abnormal Psychology, 111,* 269-289.

Barkley, R.A., Shelton, T.L., Crosswait, C., Moorehouse, M., Fletcher, K., Barrett, S., Jenkins, L., & Metevia, L. (2002). Preschool children with disruptive behavior: three-year outcome as a function of adaptive disability. *Developmental Psychopathology, 14,* 45-67.

Barkley, R.A. (1998). *Attention deficit hyperactivity disorder: A handbook for the diagnosis and treatment.* New York: Guildford Press.

Barkley, R.A., & Murphy, K.R. (1998). *Attention Deficit Hyperactivity Disorder: A Clinical Workbook.* New York: Guildford.

Barkley, R.A. (1997). Behavioral inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin, 121,* 65-94.

Barkley, R.A. (1996). Attention-deficit/hyperactivity disorder. In E.J. Mash & R.A. Barkley (Eds.), *Child Psychopathology (pp. 63-112).* New York: Guildford Press.

Barkley, R.A., Anastopoulos, A.D., Guevremont, D.C., & Fletcher, K.E. (1992). Adolescents with attention deficit hyperactivity disorder: Mother-adolescent interactions, family beliefs, and conflicts, and maternal psychopathology. *Journal of Abnormal Child Psychology, 20,* 263-288.

Barkley, R.A., Fischer, M., Edelbrock, C.S., & Smallish, L. (1991). Adolescent outcome of hyperactive children diagnosed by research criteria: III. Mother-child interaction, family conflict, and maternal psychopathology. Journal of *Child Psychology and Psychiatry, 32,* 233-256.

Barkley, R.A. (1990). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment.* New York: Guildford Press.

Barkley, R.A., Fisher, M., & Smallish, L. (1990). The adolescent outcome of hyperactive children diagnosed by research criteria I: An 8-year prospective follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry, 29,* 546-557.

Barkley, R.A. (1989). Attention-deficit hyperactivity disorder. In E.J. Mash & R.A. Barkley (Eds.), *Treatment of childhood disorders (pp. 39-72).* New York: Guildford Press.

Barkley, R.A. (1979). The effects of methylphenidate on the mother-child interactions of hyperactive children. *Archives of General Psychiatry, 36,* 201-208.

Barkley, R.A., & Cunningham, C.E. (1979). Stimulant drugs and activity level in hyperactive children. *American Journal of Orthopsychiatry, 49,* 491-499.

Baron, R.A. (1988). Negative effects of destructive criticism: Impact on conflict, self efficacy, and task performance. *Journal of Applied Psychology, 73,* 199-207.

Batson, C.D. (1991). *The altruism question: Toward a social-psychological answer.* Hillsdale, NJ: Erlbaum.

Batson, C.D., Fultz, J., & Schoenrade, P.A. (1987). Distress and empathy: Two qualitatively distinct vicarious emotions with different motivational consequences. *Journal of Personality, 55,* 19-39.

Batson, C.D., & Coke, J.S. (1983). Empathic motivations of helping behavior. In J.T. Cacciopo & R.E. Petty (Eds.), *Social Psychophysiology: A sourcebook* (pp. 417-433). New York: Guildford.

Baumrind, D. (1993). The average expectable environment is not good enough: A response to Scarr. *Child Development, 64,* 1299-1317.

Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology Monographs, 4* (No.1, p. 2).

Baumrind, D. (1967). Child care practices anteceding three patterns of preschool behaviour. *Genetic Psychology Monographs, 75,* 43-88.

Bears, K.E., & Eyberg, S. (1998). A test of the parenting alliance theory. *Early Education and Development, 9,* 179-185.

Befera, M.S., & Barkley, R.A.(1985). Hyperactive and normal girls and boys: Mother child interaction, parent psychiatric status and child psychopathology. *Journal of Child Psychology and Psychiatry, 26,* 439-452.

Bell, R.Q. (1968). A reinterpretation of direction of effects in studies of socialization. *Psychological Review, 75,* 81-95.

Belsky, J., Crnic, K., Woodworth, S. (1995). Personality and parenting: Exploring the mediating role of transient mood and daily hassles. *Journal of Personality, 63,* 905-929.

Bernal, M.E., Gibson, D.M., Williams, D.E., & Pesses, D.I. (1971). A device for recording automatic audio tape recording. *Journal of Applied Behavior Analysis, 4,* 151-190.

Berscheid, E. (1985). Interpersonal attraction. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (pp. 413-484). New York: Random House.

Berscheid, E., & Walster, E. (1983). *Interpersonal Attraction.* Reading, MA: Addison Wesley.

Bettes, B.A. (1988). Maternal depression and motherese: Temporal and intonational features. *Child Development, 59,* 1089-1096.

Biederman, J., Faraone, S.V., & Monuteaux, M.C. (2002). Impact of exposure to parental attention-deficit hyperactivity disorder on clinical features and dysfunction in the offspring. *Psychological Medicine, 32,* 817-827.

Biederman, J., Faraone, S., Milberger, S., Curtis, S., Chen, L., Marrs, A., Quellette, C., Moore, P., & Spencer, T. (1996). Predictors of persistence and remission of ADHD into adolescence: Results from a four-year prospective follow-up

study. *Journal of the American Academy of Child and Adolescent Psychiatry, 35,* 343-351.

Biederman, J., Faraone, S., Spencer, T., Wilens, T., Mick, E., & Lapey, A. (1994). Gender differences in a sample of adults with attention deficit hyperactivity disorder. *Psychiatric Research, 53,* 13-29.

Biederman, J., Faraone, S.V., Spencer, T., Wilens, T., Norman, D., Lapey, K.A., Mick, E., Lehman, B.K., & Doyle, A. (1993). Patterns of psychiatric comorbidity, cognition, and psychosocial functioning in adults with attention deficit hyperactivity disorder. *American Journal of Psychiatry, 150,* 1792-1798.

Biederman, J., Faraone, S.V., Keenan, K., Benjamin, J., Krifcher, B., Moore, C., Sprich, S., Ugaglia, K., Kellirek, M.S., Spencer, T., Norman, B., Kolodny, R., Kraus, R., Perrin, J., Keller, M.B., & Tsuang, M.J. (1992). Further evidence for family-genetic risk factors in attention deficit hyperactivity disorder: Patterns of comorbidity in probands and relatives in psychiatrically and pediatrically referred samples. *Archives of General Psychiatry, 49,* 728-738.

Bishop, S.J., & Rothbaum, F. (1992). Parents' acceptance of control needs and preschoolers' social behavior: A longitudinal study. *Canadian Journal of Behavioral Science, 24,* 171-185.

Borger, N., & van der Meere, J. (2000). Visual behaviour of ADHD children during an attention test: An almost forgotten variable. *Journal of Child Psychology and Psychiatry, 41,* 525-532.

Boyd, J.H. Weissman, M.M., Thompson, D., & Myers, J.K. (1982). Screening for depression in a community sample: Understanding the discrepancies between depression symptom and diagnostic scales. *Archives of General Psychiatry, 39,* 1195-1200.

Bowlby, J. (1969). *Attachment.* New York: Basic Books.

Braaten, E.B., & Rosen, L.A. (2000). Self-regulation of affect in Attention Deficit-Hyperactivity Disorder (ADHD) and non-ADHD Boys: Differences in empathic responding. *Journal of Consulting and Clinical Psychology, 68,* 313-321.

Breggin, P. (1998). *Talking back to Ritalin.* Monroe, ME: Common Courage Press.

Brickman, P., & Bulman, R.J. (1977). Pleasure and pain in social comparison. In J.Suls & R.L., Miller (Ed.), Social comparison processes (pp. 149-186). New York: Wiley.

Brook, U., Watemberg, N., & Geva. D. (2000). Attitude and knowledge of attention deficit hyperactivity disorder and learning disability among high school teachers. *Patient Education and Counselling, 40,* 247-252.

Bryant, F.B., & Smith, B.D. (2001). Refining the architecture of aggression: A measurement model for the Buss-Perry Aggression Questionnaire. *Journal of Research in Personality, 35,* 138-167.

Buhrmester, D., Camparo, L., Christensen, A., Shapiro-Gonzalez, L., & Hinshaw, S.P. (1992). Mothers and fathers interacting in dyads and triads with normal and hyperactive sons. *Developmental Psychology, 28,* 500-509.

Burleson, B.R., & Denton, W.H. (1992). A new look at similarity and attraction in marriage: Similarities in social-cognitive and communication skills as predictors of attraction and satisfaction. *Communication Monographs, 59,* 268-287.

Buss, D., & Barnes, M. (1986). Preferences in human mate selection. *Journal of Personality and Social Psychology, 50,* 559-570.

Byrne, J.M., DeWolfe, N.A., & Bawden, H.N. (1998). Assessment of attention deficit hyperactivity disorder in preschoolers. *Child Neuropsychology, 4,* 49-66.

Byrne, D., Clore, G., & Smeaton, G. (1986). The attraction hypothesis: Do similar attitudes affect anything? *Journal of Personality and Social Psychology, 6,* 1167-1170.

Byrne, D. (1971). *The attraction paradigm.* New York. Academic Press.

Calam, R., Bolton, C., & Roberts, J. (2002). Maternal expressed emotion, attributions and depression and entry into therapy for children with behaviour therapy. *British Journal of Clinical Psychology, 41,* 213-216.

Calzada, E.J., Eyberg, S.M., Rich, B., & Querido, J. (2004). Parenting disruptive preschoolers: Experiences of mothers and fathers. *Journal of Abnormal Child Psychology, 32,* 203-213.

Campbell, S.B., Pierce, E.W., Moore, G., Marakovitz, S., & Newby, K. (1996). Boys' externalizing problems at elementary school age: Pathways from early behavior, materal control, and family stress. *Development and Psychopathology, 8,* 701-720.

Campbell, S.B. (1995). Behavior problems in preschool children: A review of recent research. *Journal of Child Psychology and Psychiatry, 36*, 113-149.

Campbell, S.B. (1994). Hard-to-manage preschool boys: externalizing behavior, social competence, and family context at two year follow-up. *Journal of Abnormal Child Psychology, 22,* 147-166.

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

Campbell, S.B., March, C.L., Pierce, E., Ewing, L.J., & Szumowski, E.K. (1991). Hard-to-manage preschool boys: family context and the stability of externalizing behaviour. *Journal of Abnormal Child Psychology, 19,* 301-310.

Campbell, S.B., Pierce, E., March, C., & Ewing, L.J. (1991). Noncompliant behaviour, overactivity, and family stress as predictors of negative maternal control in preschool children. *Development and Psychopathology, 3,* 175-190.

Campbell, S.B. (1990). *Behavior problems in preschool children: Clinical and developmental issues.* New York: Guildford Press.

Carlson, E.A., Jacobvitz, D., & Sroufe, L.A. (1995). A developmental investigation of inattentiveness and hyperactivity. *Child development, 66*, 37-54.

Cazden, C.B. (1988). *Classroom discourse: The language of teaching and learning.* Portsmouth, NH: Heinemann.

Chen, X., Liu, M., & Li, D. (2000). Parental warmth, control, and indulgence and their relations to adjustment in Chinese children. *Journal of Family Psychology, 14,* 401-419.

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

Cialdini, R.B., Brown, S.L., Lewis, B.P., Luce, C., & Neuberg, S.L. (1997). Reinterpreting the empathy-altruism relationship: when one into one equals oneness. *Journal of Personality and Social Psychology, 73,* 481-494.

Civic, D., & Holt, V.L. (2000). Maternal depressive symptoms and child behavior problems in a nationally representative normal birthweight sample. *Maternal and Child Health Journal, 4,* 215-221.

Clark, L.A., Kochanska, G., & Ready, R. (2000). Mothers' personality and Its interaction with child temperament as predictors of parenting behavior. *Journal of Personality and Social Psychology, 79,* 274-285.

Clark, M.L., Cheyne, J.A., Cunningham, C.E., & Siegel, L.S. (1988). Dyadic peer interaction and task orientation in attention deficit disordered children. *Journal of Abnormal Child Psychology, 16,* 1-15.

Cole, P.M., Michel, M.K., & Teti, L.O. (1994). The development of emotion regulation and dysregulation: A clinical perspective. In N.A. Fox (Ed.), The development of emotion regulation: Biological and behavioral considerations (pp. 73-102*). Monographs of the Society for Research in Child Development, 59*, (2-3, Serial No. 240).

Colletta, N.D. (1983). At risk for depression: a study of young mothers. *Journal of Genetic Psychology, Child behaviour, and Comparative Psychology, 142,* 301-310.

Compas, B.E., Howell, D.C., Phares, V., Williams, R.A., & Ledoux, N. (1989). Parent and child stress and symptoms: An integrative analysis. *Developmental Psychology, 25,* 550-559.

Conger, R.D., & Elder, Jr., G.H. (1994). *Families in troubled times. Adopting to change in rural America.* Hawthorne, NY: Aldine.

Conger, R.D., Ge, X., Elder, Jr., G.H., Lorenz, F.O., & Simons, R.L. (1994). Economic stress, coercive family process and developmental problems of adolescents. *Child Development, 65,* 541-561.

Connell, C., & Prinz, R. (2002). The impact of childcare and parent-child interactions on school readiness and social skills development for low-income African American children. *Journal of School Psychology, 40,* 177-193.

Conrad, M., & Hammen, C. (1989). Role of maternal depression in perceptions of child maladjustment. *Journal of Consulting and Clinical Psychology, 57,* 663-667.

Corkum, P., Moldofsky, H., Hogg-Johnson, S., Humphries, T., & Tannock, R. (1999). Sleep problems in children with attention-deficit/hyperactivity disorder: Impact of subtype, comorbidity, and stimulant medication. *Journal of the American Academy of Child and Adolescent Psychiatry, 38,* 1285-1293.

Cornah, D., Sonuga-Barke, E., Stevenson, J., & Thompson, M. (2003). The impact of maternal mental health and child's behavioural difficulties on attributions about child behaviours. *British Journal of Clinical Psychology, 42,* 69-79.

Cox, A.D., Puckering, C., Pound, A., & Mills, M. (1987). The impact of maternal depression in young children. *Journal of Child Psychology and Psychiatry, 28,* 917-928.

Coyne, J.C., Downey, G., & Boergers, J. (1992). Depression in families: A systems perspective. In D.Cicchetti & S.L. Toth (Eds.), *Development perspectives on depression* (pp. 211-249). New York: University of Rochester Press.

Crick, N. R., & Dodge, K.A. (1994). A review and reformation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115,* 74-101.

Criss, M.M., & Shaw, D.S. (2003). Mother-son positive synchrony in middle childhood: Relation to antisocial behaviour. *Social Development, 12,* 379-400.

Cuffe, P., McKeown, E., Jackson, L., Addy, L., Abramson, R,. & Garrison, Z. (2001). Prevalence of Attention-Deficit/Hyperactivity Disorder in a community sample of older adolescents. *Journal of Child and Adolescent Psychiatry, 40,* 1037-1044.

Cummings, M., & Davis, P. (1994). *Children and marital conflict. The impact of family dispute and resolution.* The Guildford Press.

Cunningham, C.E., & Boyle, M.H. (2002). Preschoolers at risk for attention-deficit hyperactivity disorder and oppositional defiant disorder: Family, parenting, and behavioral correlates. *Journal of Abnormal Child Psychology, 30,* 555-569.

Cunningham, C.E., Benness, B.B., & Siegel, L.S. (1988). Family functioning, time allocation, and parental depression in the families of normal and ADHD children. *Journal of Clinical Child Psychology, 17,* 169-177.

Cunningham, C.E., & Barkely, R.A. (1979). The interactions of hyperactive and normal children with their mothers in free play and structured tasks. *Child Development, 50,* 217-224.

Dadds, M., Sanders, M., Morrison, M., & Rebgetz, M. (1992). Childhood depression and conduct disorder: II. An analysis of family interaction patterns in the home. *Journal of Abnormal Psychology, 101,* 505-513.

Daley, D., Fearon, K., Birchwood, J. & Hoeger, M. (in preparation). The influence of young adult AD/HD symptoms on mood instability.

Daley, D., Sonuga-Barke, E., & Thompson, M. (2003). Assessing expressed emotion in mothers of preschool AD/HD children: Psychometric properties of a modified speech sample. *British Journal of Clinical Psychology, 42,* 53-67.

Daley, D. (1999). The impact of psychological interventions for AD/HD on expressed emotion and mother-child interaction. PhD Thesis. University of Southampton.

Dalteg, A., Lindgren, M., & Lavander, S. (1999). Retrospective rated ADHD is linked to specific personality characteristics and deviant alcohol reaction. *The Journal of Forensic Psychiatry, 10,* 623-634.

Dane, A.V., Schachar, R.J., & Tannock, R. (2000). Does actigraphy differentiate subtypes in a clinical research setting? *Journal of the American Academy of Child and Adolescent Psychiatry, 39,* 752-760.

Danforth, S., Barkley, A., & Stokes, F. (1991). Observations of parent-child interactions with hyperactive children: Research and clinical implications. *Clinical Psychology Review, 11,* 703-727.

Davenport, Y.B., Zahn-Waxler, C., Adland, M.C. & Mayfield, J. (1984). Early child-rearing practices in families with a manic-depressive parent. *The American Journal of Psychiatry, 141,* 230-235.

Davis, M.H., Conklin, L., Smith, A., & Luce, C. (1996). The effect of perspective taking on the cognitive representation of persons: A merging of self and other. *Journal of Personality and Social Psychology, 70,* 713-726.

Davis, M.H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44,* 113-126.

Davis, M.H. (1983). The effects of dispositional empathy on emotional reactions and helping: A multidimensional approach. *Journal of Personality, 51,* 167-184.

Deater-Deckard, K., & Petrill, S.A. (2004). Parent-child dyadic mutuality and child behavior problems: an investigation of gene-environment processes. *Journal of Child Psychology and Psychiatry, 45,* 1171-1179.

DeKlyen, M., Biernbaum, M.A., Speltz, M.L., & Greenberg, M.T. (1998). Fathers and preschool behaviour problems. *Developmental Psychology, 34,* 264-275.

Delfini, L.F., Bernal, M.E., & Rosen, P.M. (1976). Comparison of deviant and normal boys in home settings. In E.M. Mash, L.A. Hamerlynch, & L.C. Handy (Eds.), *Behavior modification and families.* New York: Bruner/Mazel.

Deutsch, F., & Madle, R.A. (1975). Empathy: Historic and current conceptualizations, measurement, and a cognitive theoretical perspective. *Human Development, 18,* 267-287.

DeWolfe, N., Byrne, J.M. & Bawden, H.N. (2000). ADHD in preschool children: parent rated psychosocial correlates. *Developmental Medical Child Neurology, 42,* 825-830.

Douglas, V.I. (1983). Attention and cognitive problems. In M. Rutter (Ed.), *Developmental neuropsychiatry* (pp. 280-329). New York: Guildford Press.

Downey, G., & Coyne, J.C. (1990). Children of depressed parents: An integrative review. *Psychological Bulletin, 108,* 50-76.

Dunn, J., & Hughes, C. (2001). "I got some swords and you' re dead!" Violent fantasy, antisocial behavior, friendship, and moral sensibility in young children. *Child Development, 72,* 491-505.

DuPaul, G.J., McGoey, K.E., Eckert, T.L., & VanBrakle, J. (2001). Preschool children with Attention-Deficit/Hyperactivity Disorder: Impairments in behavioral, social, and school functioning. *Journal of the American Academy of Child and Adolescent Psychiatry, 40,* 508-515.

DuPaul, G.J., Anastopoulos, A.D., Power, T.J., Reid, R., Ikeda, M.J. & McGoey, K.E. (1997). Parent ratings of attention-deficit/hyperactivity disorder symptoms: Factor structure, normative data, and psychometric properties. *Journal of Psychopathology and Behavioral Assessment, 20,* 57-82.

Eagly, A.H., & Chaiken, S. (1993). *The psychology of attitudes.* London: Harcourt Brace Jovanovich.

Eagly, A.H. (1987). Sex differences in social behavior: A social role interpretation. Hillsdale, NJ: Erlbaum.

Eddy, J.M., Dishion, T., & Stoolmiller, M. (1998). The analysis of intervention change in children and families: Methodological and conceptual issues embedded in intervention studies. *Journal of Abnormal Child Psychology, 26,* 53-71.

Eisenberg, N., Fabes, R.A., Murphy, B., Karbon, M., Smith, M., & Maszk, P. (1996). The relations of children's dispositional empathy-related responding to their emotionality, regulation, and social functioning. *Developmental Psychology, 32,* 195-209.

Eisenberg, N., & Fabes, R. (1990). Empathy: Conceptualization, assessment, and relation to prosocial behaviour. *Motivation and Emotion, 14,* 131-149.

Elgar, F.J., Waschbusch, D.A., McGrath, P.J., Stewart, S.H., & Curtis, L.J. (2004). Temporal relations in daily-reported maternal mood and disruptive child behavior. *Journal of Abnormal Child Psychology, 32,* 237-247.

Epstein, J., Coners, C., Erhardt, D., Arnold, E., Hechman, L., Hinshaw, S., Hoza, B., Newcorn, J., Swanson, J. & Vitiello, B. (2000). Familiar aggregation of ADHD characteristics. *Journal of Abnormal Child Psychology, 28,* 585-594.

Erel, O., & Burman, B. (1995). Interrelatedness of marital relations and parent-child relations: A meta-analytic review. *Psychological Bulletin, 118,* 108-132.

Evans, S.W., Vallano, G., Pelham, W. (1994). Treatment of parenting behavior with a psychostimulant: A case study of an adult with attention deficit hyperactivity disorder. *Journal of Child and Adolescent Psychiatry, 4,* 63-69.

Eyberg, S.M., & Pincus, D. (1999). *Eyberg Child Behavior Inventory and Sutter-Eyberg Student Behavior Inventory-revised professional manual.* Odessa, FL: Psychological Assessment Recourses.

Fantuzzo, J., Grim, S., Mordell, M., McDermott, P., Miller, L., & Coolahan, K. (2001). A multivariate analysis of the revised Conners' Teacher Rating Scale with low-income, urban preschool children. *Journal of Abnormal Child Psychology, 29,* 141-152.

Faraone, S.V., Biederman, J., Monuteaux, M.C., Cohan, S.L., & Mick, E. (2003). Does parental AD/HD bias maternal reports of AD/HD symptoms in children?. *Journal of Consulting and Clinical Psychology, 71,* 168-175.

Faraone, S.V. (2000). Attention deficit hyperactivity disorder in adults: Implications for theories of diagnosis. *Current directions in psychological science,* 33-36.

Faraone, S.V., Biederman, J., Feighner, J., & Monuteaux, M. (2000). Assessing symptoms of attention deficit hyperactivity disorder in children and adults. Which is more valid? *Journal of Consulting and Clinical Psychology, 68,* 830-842.

Faraone, S.V., Tsuang, D., & Tsuang, M.T. (1999). *Genetics and mental disorders: A guide for students, clinicians and researchers.* New York: Guildford Press.

Faraone, S., & Biederman, J. (1998). Neurobiology of attention deficit hyperactivity disorder. *Biological Psychiatry, 44,* 951-958.

Faraone, S.V., Biederman, J., & Mick, E. (1997). Symptom reports by adults with attention deficit hyperactivity disorder: Are they influenced by attention deficit hyperactivity disorder in their children? *Journal of Nervous and Mental Diseases, 185,* 583-584.

Faraone, S.V., & Tsuang, M.T. (1995). Methods in psychiatric genetics. In M.Tohen, M.T. Tsuang, & G.E. Zahner (Eds.), *Textbook in psychiatric epidemiology* (pp. 81-134). New York: Guildford Press.

Faraone, S.V., & Biederman, J. (1994). Genetics of attention-deficit hyperactivity disorder. *Child and Adolescent Psychiatric Clinics of North America, 3,* 285-302.

Fauber, R.L., Forehand, R., McCombs, R., & Wierson, M. (1990). A mediational model of the impact of marital conflict on adolescent adjustment in intact and divorced families: The role of disrupted parenting. *Child Development, 61,* 1112-1123.

Fehr, B. (1996). *Friendship processes.* Thousand Oaks, CA: Sage.

Fergusson, D., Lynskey, M., & Horwood, L. (1993). The effect of maternal depression on maternal ratings of child behavior. *Journal of Abnormal Child Psychology, 21,* 245-271.

Feshback, N.D., & Feshbach, S. (1982). Empathy training and the regulation of aggression: Potentialities and limitations. *Academic Psychology Bulletin, 4,* 399-413.

Feshbach, N. (1978). Studies of empathic behaviour in children. In B.A. Maher (Ed.) *Experimental personality research* (pp.1-47). New York: Academic Press.

Field, T. (1998). Maternal depression effects on infants and early interventions. *Preventative Medicine, 27,* 200-203.

Field, T., Sanberg, D., Garcia, R., Vega-Lahr, N., Goldstein, S., & Guy, L. (1985). Pregnancy problems, postpartum depression, and early mother-infant interactions. *Developmental Psychology, 21,* 1152-1156.

Field, T. (1984). Early interactions between infants and their postpartum depressed mothers. *Infant Behaviour and Development, 7,* 512-522.

Forehand, R., Lautenschlager, G.J., Faust, J., & Graziano, W.G. (1986). Parent perceptions and parent-child interactions in clinic-referred children: A preliminary investigation of the effects of maternal depressive moods. *Behavior Research and Therapy, 24,* 73-75.

Forehand, R., King, H.E., Peed, S., & Yoder, P. (1975). Mother-child interactions: Comparison of a non-compliant clinic group and a non-clinic group. *Behavior Research and Therapy, 13,* 79-84.

Frick, P.J. (1998). Conduct disorders. In T.H. Ollendick & M. Hersen (Eds.), *Handbook of child psychopathology* (3rd ed., pp. 213-237). New York: Plenum Press.

Galboda-Liyanage, K.C., Prince., J., & Scott, S. (2003). Mother-child joint activity and behaviour problems of pre-school children. *Journal of Child Psychology and Psychiatry, 44,* 1037-1048.

Gardner, F., Ward, S., Burton, J., & Wilson, C. (2003). The role of mother-child joint play in the early development of children's conduct problems: A longitudinal study. *Social Development, 12,* 361-378.

Gardner, F.E.M. (1994). The quality of joint activity between mothers and their children with behaviour problems. *Journal of Child Psychology and Psychiatry, 35,* 935-948.

Gardner, F.E.M. (1992). Parent-child interaction and conduct disorder. *Educational Psychology Review, 15,* 283-293.

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

Gardner, F.E.M. (1987). Positive interaction between mothers and children with conduct problems: Is there training for harmony as well as fighting? *Journal of Abnormal Child Psychology, 15,* 283-293.

Ge, X., Conger, R.D., Cadoret, R.J., Neiderhiser, J.M., Yates, W., Troughton, E., & Stewart, M.A. (1996). The developmental interface between nature and nurture: A mutual influence model of child antisocial behavior and parent behaviours. *Developmental Psychology, 4,* 574-589.

Gerdes, A.C., Hoza, B., & Pelham, W. (2003). Attention-deficit/hyperactivity disordered boys' relationships with their mothers and fathers: Child, mother, and father perceptions. *Development and Psychopathology, 15,* 363-382.

Gibbons, F.X. (1986). Social comparison and depression: Company's effect on misery. *Journal of Personality and Social Psychology, 51,* 140-148

Gjerde, P., Block, J., & Block, J.H. (1991). The pre-school family context of 18-year-olds with depressive symptoms: A prospective study. *Journal of Research on Adolescence, 1,* 63-91.

Gilligan, C. (1982). In a different voice: Psychological theory and women's development. Cambridge MA: Harvard University Press.

Goldberg, D.P., Gater, R., Sartorius, N., Ustun, T.B., Piccinelli, M., Gureje, O., & Rutter, C. (1997). The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychological Medicine, 27,* 191-197.

Goldberg, D.P. (1982). *General Health Questionnaire Manual.* Windsor: NFER.

Goldberg, D.P. (1978). *Manual for the General Health Questionnaire.* Slough. NFER.

Goodman, R. , & Scott, S. (1999). Comparing the strengths and difficulties questionnaire and the child behavior checklist: is small beautiful? *Journal of Abnormal Child Psychology,* 27, 17-24.

Goodman, R. (1997). The strengths and difficulties questionnaire: a research note. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 38,* 581-586.

Goodman, R., & Stevenson, J. (1989). A twin study of hyperactivity I: an examination of hyperactivity scores and categories derived from Rutter teacher and parent questionnaires. *Journal of Child Psychology and Psychiatry, 30,* 671-689.

Goodman, R., & Stevenson, J. (1989). A twin study of hyperactivity-II. The aetiological role of genes, family relationships and perinatal adversity. *Journal of Child Psychology and Psychiatry, 30,* 691-709.

Goodman, S.H. & Gotlib, I.H. (2002). Children of depressed parents: a developmental perspective: Washington DC: American Psychological Association.

Goodman, S.H., & Gotlib, I.H. (1999). Risk for psychopathology in the children of depressed mothers: a developmental model for understanding mechanisms of transmission. *Psychological Review, 106,* 458-459.

Goodman, S.H., Adamson, L.B., Riniti, J., & Cole, S. (1994). Mothers' expressed attitudes: Associations with maternal depression and children's self-esteem and psychopathology. *Journal of the American Academy of Child and Adolescent Psychiatry, 33,* 1265-1274.

Goodman, S.H., & Brumley, H.E. (1990). Schizophrenic and depressed mothers: Relational deficits in parenting. *Developmental Psychology, 26,* 31-39.

Gordon, D., Burge, D., Hammen, C., Adrian, C., Jaenicke, C., & Hiroto, D. (1989). Observations of interactions of depressed women with their children. *American Journal of Psychiatry, 146,* 50-55.

Greenberg, M., Kusche, C., Cook, E.T., & Quamma, J.P. (1995). Promoting emotional competence in school-aged children: The effects of the PATHS curriculum. *Development and Psychopathology, 7,* 117-136.

Gruber, R., Sadeh, A., & Rativ, A. (2000). Instability of sleep patterns in children with attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 39,* 495-501.

Guevremont, D. (1990). Social skills and peer relationships training. In Barkley, R.A. *Attention –Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment* (pp. 540-572). New York: Guildford.

Haley, J. (1976). *Problem-solving therapy.* San Francisco: Jossey-Bass.

Halperin, J.M., Newcorn, J.H., Matier, K., Sharma, V., McKay, K., & Schwartz, S. (1993). Discriminant validity of attention-deficit hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 32,* 1038-1043.

Halperin, J.M., Matier, K., Bedi, G., Sharma, V., & Newcorn, J.H. (1992). Specificity of inattention, impulsivity and hyperactivity to the diagnosis of attention-deficit hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 31,* 190-196.

Harvey, E., Danforth, J.S.,McKee, E., Ulaszek, W.R., & Friedman, J.L. (2003). Parenting of children with Attention-Deficit/Hyperactivity Disorder (ADHD): The role of parental ADHD symptomatology. *Journal of Attention Disorders, 7,* 31-41.

Hatfield, E., Cacioppo, J.T., & Rapson, R.L. (1994). *Emotional contagion.* New York: Cambridge University Press.

Hechtman, L. (1996). Families of children with attention deficit hyperactivity disorder: A review. *Canadian Journal of Psychiatry, 41,* 350-360.

Henker, B., Whalen, C.K., Carter, M.J., Garland, K., & Heller, T. (1996, January). *Explaining positive and negative behaviours: Causal attributions generated by parents of ADHD vs non ADHD boys.* Poster presented at the meeting of the International Society for Research in Child and Adolescent Psychopathology, Santa Monica, CA.

Hesslinger, B., Van Elst, L.T., Mochan, F., & Ebert, D. (2003). Attention deficit hyperactivity disorder in adults – early vs. late onset in a retrospective study. *Psychiatry Research, 119,* 217-223.

Hibbs, E.D., Hamburger, S.D., Lenane, M., Rapoport, J.L., Kruesi, M.J., Leysor, C.S., & Goldstein, M.J. (1990). Determinants of expressed emotion in families of disturbed and normal children. *Journal of Child Psychology and Psychiatry, 32,* 757-770.

Hinshaw, S.P., & Melnick, S. (1995). Peer relationships in boys with attention deficit-hyperactivity disorder with and without co-morbid aggression. *Development and Psychopathology, 7,* 627-647.

Hinshaw, S.P. (1994). *Attention deficits and hyperactivity in children.* Thousand Oaks, CA: Sage.

Hirshfield, D.R., Biederman, J., Brody, L., Faraone, S.V., & Rosenbaum, J.F. (1997). Associations between expressed emotion and child behavioural inhibition and psychopathology: A pilot study. *Journal of the American Academy of Child and Adolescent Psychiatry, 36,* 205-212.

Hoffman, M.L. (1976). Empathy, role taking, guilt, and the development of altruistic motives. In T. Lickona (Ed.), *Moral development and behaviour: Theory, research, and social issues* (pp. 124-143). New York: Holt, Rinehart & Winston.

Hoza, B., Pelham, W.E., Waschbusch, D.A., Kipp, H., & Owens, J.S. (2001). Academic task performance of normally achieving ADHD and control boys:

Performance, self-evaluations, and attributions. *Journal of Consulting and Clinical Psychology, 69,* 271-283.

Hughes, C., White, A., Sharpen, J., & Dunn, J. (2000). Antisocial, angry, and unsympathetic: "Hard to manage" preschoolers' peer problems and possible cognitive influences. *Journal of Child Psychology and Psychiatry, 2,* 169-179.

Jensen, P.S., Martin, D., & Cantwell, D.P. (1997). Comorbidity in ADHD: Implications for research, practise, and DSM-V. *Journal of the American Academy of Child and Adolescent Psychiatry, 36,* 1065-1079.

Johnson, S.M., & Bolstad, O.D. (1975). Reactivity to home observation: A comparison of audio recorded behaviour with observers present or absent. *Journal of Applied Behavior Analysis, 8,*181-185.

Johnston, C., Scoular, D.J., & Ohan, J.L. (2004). Mothers' reports of parenting in families of children with symptoms of attention-deficit/hyperactivity disorder: relations to impression management. *Child and Family Behavior Therapy, 26,* 45-61.

Johnston, C., Murray, C., Hinshaw, S., Pelham, W., & Hoza, B. (2002). Responsiveness in interactions of mothers and sons with ADHD: Relations to maternal and child characteristics. *Journal of Abnormal Child Psychology, 6,* 46-53.

Johnston, C., & Freeman, S. (1997). Attributions for child behavior in parents of children without behavior disorders and children with attention deficit hyperactivity disorder. *Journal of Consulting and Clinical Psychology, 65,* 636-645.

Johnston, C. (1996). Parent characteristics and parent-child interactions in families of nonproblem children and AD/HD children with higher and lower levels of oppositional-defiant behavior. *Journal of Abnormal Child Psychology, 24,* 85-104.

Jouriles, E.N., Murphy, C.M., Farris, A.M., Smith, D.A., Richters, J.E., & Waters, E. (1991). Marital adjustment, parental disagreements about child rearing, and behavior problems in boys: Increasing the specificity of the marital assessment. *Child Development, 62,* 1424-1433.

Jouriles, E.N., Murphy, C.M., & O' Leary, K.D. (1989). Effects of maternal mood on mother-son interaction patterns. *Journal of Abnormal Child Psychology, 17,* 513-525.

Kadesjo, B., & Gillberg, C. (2001). The Comorbidity of ADHD in the general population of Swedish school-age children. *Journal of Child Psychology and Psychiatry, 42,* 487-492.

Kalliath, T.J., O' Driscoll, M.P., & Brough, P. (2004). A confirmatory factor analysis of the General Health Questionnaire-12. *Stress and Health, 20,* 11-20.

Kashdan, T.B., Jacob, R.G., Pelham, W.E., Lang, A.R., Hoza, B., Blumenthal., & Gnagy, E.M. (2004). Depression and anxiety in parents of children with ADHD and varying levels of oppositional defiant behaviors: modeling relationships with family functioning. *Journal of Clinical and Child Adolescent Psychology, 33,* 169-181.

Kashdan, T.B., Pelham, W.E., Lang, A.R., Hoza, B., Jacob, R.G., Jennings, J.R., Blumenthal, J.D., & Gnagy, E.M. (2002). Hope and optimism as human strengths in

parents of children with externalizing disorders: Stress is in the eye of the beholder. *Journal of Social and Clinical Psychology, 21,* 441-468.

Kaslow, N.J., Deering, C.G., & Racusin, G.R. (1994). Depressed children and their families. *Clinical Psychology Review, 14,* 39-59.

Kazdin, A.E., & Kagan, J. (1994). Models of dysfunction in developmental psychopathology. *Clinical Psychology: Science and Practice, 1,* 35-52.

Keenan, K., & Walschlag, L.S. (2000). More than the terrible twos: the nature and severity of behavior problems in clinic-referred preschool children. *Journal of Abnormal Child Psychology, 28,* 33-46.

Keenan, K., & Shaw, D.S. (1994). The development of aggression in toddlers: a study of low-income families. *Journal of Abnormal Child Psychology, 22,* 53-77.

Keller, M.B., Beardslee, W.R., Dorer, D.J., Lavori, P.W., Samuelson, H., & Klerman, G.L. (1986). Impact of severity and chronicity of parental affective illness on adaptive functioning and psychopathology in children. *Archives of General Psychiatry, 43,* 930-937.

Kendler, K.S., Sham, P.C., & MacLean, C.J. (1997). The determinants of parenting: An epidemiological, multi-informant retrospective study. *Psychological Medicine, 27,* 549-563.

Kendziora, K.T., & O' Leary, S.G. (1993). Dysfunctional parenting as a focus for prevention and treatment of child behavior problems. *Advances in Child Clinical Psychology, 15,* 175-206.

Keown, L.J., & Woodward, L.J. (2002). Early parent-child relations and family functioning of preschool boys with pervasive hyperactivity. *Journal of Abnormal Child Psychology, 30,* 541-553.

Kershner, J.G., Cohen, N.J., & Coyne, J.C. (1996). Expressed Emotion in families of clinically referred and nonreferred children: Toward a further understanding of the Expressed Emotion Index. *Journal of Family Psychology, 10,* 97-106.

Klein, D., Clark, D., Dansky, L., & Margolis, E.T. (1988). Dysthymia in the offspring of parents with primary unipolar affective disorder. *Journal of Abnormal Psychology, 94,* 115-127.

Klohnen, E.C., & Luo, S. (2003). Interpersonal attraction and personality: What is attractive-self similarity, ideal similarity, complementarity, or attachment security? *Journal of Personality and Social Psychology, 85,* 709-722.

Kochanska, G. (1993). Toward a synthesis of parental socialisation and child temperament in early development of conscience. *Child Development, 64,* 325-347.

Kochanska, G. (1990). Maternal beliefs as long term predictors of mother-child interaction and report. *Child Development, 61,* 1934-1943.

Kochanska, G., Kuczynski, L., Radke-Yarrow, M., & Welsh, J.D. (1987). Resolution of control episodes between well and affectively ill mothers and their young children. *Journal of Abnormal Child Psychology, 15,* 441-456.

Kohn, A. (1989, November). Suffer the restless children. The restless children. *The Atlantic Monthly, 18,* 199-214.

Kringlen, E., Torgersen, S., & Cramer, V. (2001). A Norwegian psychiatric epidemiological study. *American Journal of Psychiatry, 158,* 1091-1098.

LaFrance, M., & Ickes, W. (1981). Posture mirroring and interactional involvement: Sex and sex typing effects. *Nonverbal Behavior, 5,* 139-154.

Lamb, M.E., Pleck, J., Charnov, E., & Levine, J. (1987). A biosocial perspective on paternal behavior and involvement. In J. B. Lancaster, J., Altmann, A.S., Rossi, & L.R.Sherrod (Eds.), *Parenting across the lifespan: Biosocial perspectives* (pp. 111-142). Hawthorne, NY: Aldine.

Lamb, M.E. (1981). The development of infant-father relationships. In M.E. Lamb (Ed.), The role of the father in child development (pp. 458-488). New York: Wiley.

Lamb, M.E. (1977). Father-infant and mother-infant interaction in the first year of life. *Child Development, 48,* 167-181.

Landau, S., & Milich, R. (1988). Social communication patterns of attention deficit disordered boys. *Journal of Abnormal Psychology, 16,* 69-81.

Lavigne, J.V., Gibbons, R.D., & Stein, M.A. (1996). Prevalence rates and correlates of psychiatric disorders among preschool children. *Journal of the American Academy of Child and Adolescent Psychiatry, 35,* 204-214.

Lavori, P.W., Keller, M.B., Beardslee, W.R., & Dorer, D.J. (1988). Affective disorder in childhood: Separating the familial component of risk from individual characteristics of children. *Journal of Affective Disorders, 15,* 303-311.

Lee, C.L., & Bates, J.E. (1985). Mother-child interaction at age two years and perceived difficult temperament. *Child Development, 56,* 1314-1323.

Levy, F., Hay, D.A., McStephen, M., & Wood, C. (1997). Attention-deficit hyperactivity disorder: A category or a continuum? Genetic analysis of a large-scale twin study. *Journal of the American Academy of Child and Adolescent Psychiatry, 36,* 737-744.

Lewis, C.C. (1981). The effects of parental firm control: A reinterpretation of the findings. *Psychological Bulletin, 90,* 547-563.

Locke, K.D., & Horowitz, L.M. (1990). Satisfaction in interpersonal interactions as a function of similarity in the level of dysphoria. *Journal of Personality and Social Psychology, 58,* 823-831.

Lorch, E.P., Milich, M., Sanchez, R.P., Van den Broek, P., Baer, S., Hooks, K., Hartung, C., & Welsh, R. (2000). Comprehension of televised stories in boys with attention deficit/hyperactivity disorder and nonreferred boys. *Journal of Abnormal Child Psychology, 109,* 321-330.

Lovejoy, D.W., Ball, J.D., Keats, M., Stutts, M.L., Spain, E.H., Janda, L., & Janusz, J. (1999). Neuropsychological performance of adults with attention deficit hyperactivity disorder (ADHD): diagnostic classification estimates for measures of frontal lobe/executive functioning. *Journal of Neuropsychological Society, 3,* 222-233.

Lovejoy, M.C., Graczyk, P.A., O'Hare E., & Neuman, G. (2000). Maternal depression and parenting behaviour: A meta-analytic review. *Clinical Psychology Review, 20,* 561-592.

Lovejoy, M.C. (1991). Maternal depression: effects on social cognition and behaviour in parent child interactions. *Journal of Abnormal Child Psychology, 19,* 693-706.

Lufi, D., & Prish-Plass, J. (1995). Personality assessment of children with attention deficit hyperactivity disorder. *Journal of Clinical Psychology, 51,* 94-99.

Lytton, H. (1990). Child and parent effects in boys' conduct disorder: a reinterpretation. *Developmental Psychology, 26,* 683-697.

Maccoby, E.E., & Martin, J.A. (1983). Socialisation in the context of the family: Parent-child interaction. In E.M. Hetherington (Ed.), *Handbook of child psychology: Vol.4, Socialisation, personality and social development* (pp. 1-101). New York: Wiley.

Maedgen, J.W., & Carlson, C.L. (2000). Social functioning and emotional regulation in the attention deficit hyperactivity disorder subtypes. *Journal of Clinical Child Psychology, 29,* 30-42.

Magana, A.B., Goldstein, M.J., Karno, M., Miklowitz, D.J., Jenkins, J., & Falloon, I.R.H. (1986). A brief method for assessing expressed emotion in relatives of psychiatric patients. *Psychiatric Research, 17,* 203-212.

Mannuzza, S., Klein, R.G., Bessler, A., Malloy, P., & LaPadula, M. (1998). Adult psychiatric status of hyperactive boys grown up. *American Journal of Psychiatry, 155,* 493-498.

Mannuzza, S., Klein, R.G., Bessler, A., Malloy, P., & LaPadula, M. (1993). Adult outcome of hyperactive boys: Educational achievement, occupational rank, and psychiatric status. *Archives of General Psychiatry, 50,* 565-576.

Mariani, M.A., & Barkley, R.A. (1997). Neuropsychological and academic functioning in preschool boys with attention deficit hyperactivity disorder. *Developmental Neuropsychology, 13,* 111-129.

Marmorstein, N.R., & Iacono, W.G. (2004). Major depression and conduct disorder in youth: associations with parental psychopathology and parent-child conflict. *Journal of Child Psychology and Psychiatry, 45,* 377-386.

Marshall, V.G., Longwell, L., Goldstein, M.J., & Swanson, J.M. (1990). Family factors associated with aggressive symptomatology in boys with attention-deficit hyperactivity disorder: A research note. *Journal of Child Psychology and Psychiatry, 31,* 629-636.

Martina, A., & Tamis-LeMonda, C. (2002). Maternal depressive symptoms in relation to dimensions of parenting in low-income mothers. *Applied Developmental Science, 6,* 24-34.

Mash, E.J., & Johnston, C. (1983). Sibling interactions of hyperactive and normal children and their relationship to reports of maternal stress and self-esteem. *Journal of Clinical Child Psychology, 12,* 91-99.

Mash, E.J., & Johnston, C. (1982). Comparison of the mother-child interactions of younger and older hyperactive and normal children. *Child Development, 53,* 1371-1381.

McBride, B.A., & Mills, G. (1993). A comparison of mother and fathers involvement with their preschool age children. *Early Childhood Research Quarterly, 8,* 457-477.

McCabe, A., & Peterson, C. (1991). Getting the story: A longitudinal study of parental styles in eliciting narratives and developing narrative skill. In A. McCabe & C. Peterson (Eds.), *Developing narrative structure (*pp. 217-253). Hillsdale, NJ: Erlbaum.

McCarty, C.A., Lau, A.S., Valeri, S.M., & Weisz, J.R. (2004). Parent-child interactions in relation to critical and emotionally overinvolved expressed emotion (EE): Is EE a proxy for behavior? *Journal of Abnormal Child Psychology, 32,* 83-93.

McCarty, C.A., & Weisz, J.R. (2002). Correlates of expressed emotion in mothers of clinically-referred youth: An examination of the five minutes speech sample. *Journal of Child Psychology and Psychiatry, 43,* 759-768.

McCormick, L.H. (1995). Depression in mothers of children with attention deficit hyperactivity disorder. *Family Medicine, 27,* 176-179.

McFarlane, A.H., Belissimo, A., & Norman, G.R. (1995). Family structure, family functioning and adolescent well-being: The transcendent influence of parental style. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 36,* 847-864.

McGee, R., Williams, S., & Feehan, M. (1992). Attention deficit disorder and age of onset of problem behaviors. *Journal of Abnormal Child Psychology, 20,* 487-502.

McKee, T.E., Harvey, E., Danforth, J.S., Ulaszek, W.R., & Friedman, J.L. (2004). The relation between parental coping styles and parent-child interactions before and after treatment for children with AD/HD and oppositional behavior. *Journal of Clinical Child and Adolescent Psychology, 33,* 158-168.

Melnick, S.M., & Hinshaw, S.P. (2000). Emotion regulation and parenting in AD/HD and comparison boys: Linkages with social behaviors and peer preference. *Journal of Abnormal Psychology, 28,* 73-86.

Merikangas, K.R., Weissman, M., Prusoff, B., & John, K. (1988). Assortative mating and affective disorders: psychopathology in offspring. *Psychiatry, 51,* 48-57.

Merikangas, K.R. (1984). Divorce and assortative mating among depressed patients. *The American Journal of Psychiatry, 14,* 74-76.

Merikangas, K.R., & Spiker, D.G. (1982). Assortative mating among impatients with primary affective disorder. *Psychological Medicine, 12,* 753-764.

Miller, N., Cowan, P.A., Cowan, C.P., Hetherington, E.M., & Clingempeel, W.G. (1993). Externalizing in preschoolers and early adolescents: A cross-study replication of a family model. *Developmental Psychology, 29,* 3-18.

Miller, P.A., & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing/antisocial behaviour. *Psychological Bulletin, 103,* 324-344.

Miller, S.A. (1995). Parents' attributions for their children's behavior. *Child Development, 66,* 1557-1584.

Minde, K., Eakin, L., Hetchman, L., Ochs, E., Bouffard, R., Greenfield, B., & Looper, K. (2003). The psychosocial functioning of children and spouses of adults with ADHD. *Journal of Child Psychology and Psychiatry, 44,* 637-646.

Minde, K., Weiss, G., & Mendelson, N. (1972). A 5-year follow-up study of 91 hyperactive school children. *Journal of the American Academy of Child and Adolescent Psychiatry, 11,* 595-610.

Minuchin, S. Rosman, B.L., & Baker, L. (1978). *Psychosomatic families: Anorexia nervosa in context.* Cambridge, MA: Harvard University Press.

Mize, J., & Pettit, G.S. (1997). Mothers' social coaching, mother-child relationship style, and children's peer competence: Is the medium the message? *Child Development, 68,* 312-332.

Mori, L., & Peterson, L. (1995). Knowledge of safety of high and low active-impulsive boys: Implications for child injury prevention. *Journal of Clinical Child Psychology, 24,* 370-376.

Morrison, J. (1980). Adult psychiatric disorders in parents of hyperactive children. *American Journal of Psychiatry, 137,* 825-827.

Murphy, K. & Barkley, R. (1996). Attention deficit hyperactivity disorder in adults: Comorbidities and adaptive impairments. *Comprehensive Psychiatry, 37,* 393-401.

Murphy, P., & Schachar, R. (2000). Use of self-ratings in the assessment of symptoms of attention deficit hyperactivity disorder in adults. *American Journal of Psychiatry, 157,* 1156-1159.

Murray, L., Fiori-Cowley, A., Hooper, R., & Cooper, P. (1996). The impact of postnatal depression and associated adversity on early mother-infant interactions and later infant outcome. *Child Development, 67,* 2512-2526.

Neitzel, C., & Stright, A. (2004). Parenting behaviours during child problem solving: The roles of child temperament, mother education and personality, and the problem-solving context. *International Journal of Behavioral Development, 28,* 166-179.

Nelson, D.R., Hammen, C., Brennan, P.A., & Ullman, J.B. (2003). The impact of maternal depression on adolescent adjustment: The role of expressed emotion. *Journal of Consulting and Clinical Psychology, 5,* 935-944.

Niederhofer, H., Hackenberg, B., Stier, R., Lanzendorfer, K., Kemmler, G., & Lechner, T. (2003). *Psychological Reports, 92,* 849-852.

O' Connor, T.G., Deater-Deckard, K., Fulker, D., Rutter, M., & Plomin, R. (1998). Genotype-environment correlations in late childhood and early adolescence: Antisocial behavioral problems and coercive parenting. *Developmental Psychology, 34,* 970-981.

Parpal, M., & Maccoby, E.E. (1985). Maternal responsiveness and subsequent child compliance. *Child Development, 56,* 1326-1334.

Paterson, R. (1986). Performance models for antisocial boys. *American Psychologist, 41,* 432-444.

Patterson, G.R. (1997). Performance models for parenting: A social interactional perspective. In J. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (pp. 193-226). New York: Wiley.

Patterson, G.R. (1986). Performance models for antisocial boys. *American Psychologist, 41,* 432-444.

Patterson, G.R., Dishion, T.J., & Bank, L. (1984). Family interaction: A process model of deviance training. *Aggressive Behavior, 10,* 253-267.

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

Pelham, W.E., Lang, A.R., Atkeson, B., Murphy, D.A., Gnagy, E.M., Greiner, A.R., Wodde-Hamilton, M., & Greenslade, K.E. (1997). Effects of deviant child behavior on parental distress and alcohol consumption in laboratory interactions. *Journal of Abnormal Child Psychology, 25,* 413-424.

Pelham, W.E., & Lang, A.R. (1993). Parental alcohol consumption and deviant child behaviour: Laboratory studies of reciprocal effects. *Clinical Psychology Review, 13,* 763-784.

Pelham, W.E., & Lang, A.R. (1982). Peer relations in hyperactive children: Description and treatment. In K. Gadow & I.Bialer (Eds). *Advances in Learning and Behavioral Disabilities ,1,* (pp. 365-436). Greenwich, CT: JAI Press.

Peris, T.S., & Hinshaw, S.P. (2003). Family dynamics and preadolescent girls with ADHD: the relationship between expressed emotion, ADHD symptomatology, and comorbid disruptive behaviour. *Journal of Child Psychology and Psychiatry, 44,* 1177-1190.

Peris, T.S., & Baker, B.L. (2000). Applications of the expressed emotion construct to young children with externalising behavior: Stability and prediction over time. *Journal of Child Psychology and Psychiatry, 41,* 457-482.

Peterson, B.S., Pine, D.S., Cohen, P., & Brook, J.S. (2001). Prospective, longitudinal study of tic, obsessive-compulsive, and attention-deficit/hyperactivity disorders in an epidemiological sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 40,* 685-695.

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

Phares, V. (1996). *Fathers and developmental psychopathology.* New York: Wiley.

Phares, V. (1992). Where's poppa? The relative lack of attention to the role of fathers in child and adolescent psychopathology. *American Psychologist, 47,* 656-664.

Phares, V., & Compas, B.E. (1992). The role of fathers in child and adolescent psychopathology: Make room for daddy. *Psychological Bulletin, 111*, 387-412.

Podolski, C.L., & Nigg, J.T. (2001). Parent Stress and Coping in Relation to Child ADHD Severity and Associated Child Disruptive Behavior Problems. *Journal of Clinical Child Psychology, 30,* 503-513.

Puckering, C. (1989). Maternal depression. *Journal of Child Psychology and Psychiatry, 30,* 807-817.

Querido, J.G., Eyberg, S.M., & Boggs, S.R. (2001). Revisiting the accuracy hypothesis in families of young children with conduct problems. *Journal of Clinical Child Psychology, 30,* 253-261.

Rappoport, J.L., & Castellanos, X. (1996). Attention deficit hyperactivity disorder. In J.M. Wiener (Ed.), *Diagnosis and psychopharmacology of childhood and adolescent disorder.* Chichester, UK: John Wiley.

Rapoport, J.L., Donnelly, M., Zametkin, A., & Carrougher, J. (1986). Situational hyperactivity in a US clinical setting. *Journal of Child Psychology and Psychiatry, 27,* 639-646.

Rasmussen, P., & Gillberg, C. (2001). Natural outcome of ADHD with developmental coordination disorder at age 22 years: A controlled, longitudinal community-based study. *Journal of the American Academy of Child and Adolescent Psychiatry, 39,* 1424-1431.

Reebuy, P.N. (1997, October). *Diagnosis and treatment of ADHD in preschoolers.* Paper presented at the annual meeting of the American Academy of Child and Adolescent Psychiatry, Toronto.

Reiss, D., Hetherington, E.M., Plomin, P., Howe, G., Simmens, S.J., Henderson, S.H., O' Connor, T.J., Bussell, D.A., Anderson, E.R., & Law, T. (1995). Genetic questions for environmental studies. Differential parenting and psychopathology in adolescence. *Archives of General Psychiatry, 52,* 925-936.

Rey, J.M. (1995). Perceptions of poor maternal care are associated with adolescent depression. *Journal of Affective Disorders, 34,* 95-100.

Rey, J.M. (1994). Comorbidity between disruptive disorders and depression in referred adolescents. *Australian and New Zealand Journal of Psychiatry, 28,* 106-113.

Rhee, S.H., & Waldman, I. (2002). Genetic and environmental influences on antisocial behavior: A Meta-analysis of twin and adoption studies. *Psychological Bulletin, 28,* 490-529.

Richters, J. (1992). Depressed mothers as informants about their children: A critical review of the evidence for distortion. *Psychological Bulletin, 112,* 485-499.

Rieppi, R., Greenhill, L., Ford, R., Chuang, S., Davies, M., Abikoff, H., Arnold, L., Conners, C., Elliott, G., Hetchman, L., Hinshaw, S., Hoza, B., Jensen, P., Kraemer, H., March, J., Newcorn, J., Pelham, W., Severe, J., Swanson, J., Vitiello, B., Wells, K., & Wigal, T. (2002). Socioeconomic status as a moderator of ADHD treatment outcomes. *Journal of the American Academy of Child and Adolescent Psychiatry, 3,* 269-277.

Rietveld, M.J., Hudziak, J.J., Bartels, M., van Beijsterveldt, C.E., & Boosma, D.I. (2004). Heritability of attention problems in children: longitudinal results from a study of twins, age 3 to 12. *Journal of Child Psychology and Psychiatry, 45,* 577-588.

Rosenbaum, M.E. (1986). The repulsion hypothesis: On the nondevelopment of relationships. *Journal of Personality and Social Psychology, 51,* 1156-1166.

Rothbaum, F., & Weisz, J.R. (1994). Parental caregiving and child externalizing behavior in nonclinical samples: A meta-analysis. *Psychological Bulletin, 116,* 55-74.

Routh, D. (1978). Hyperactivity. In: *Psychological Management of Paediatric Problems, 2,* Magrab P. Ed Baltimore University Park Press.

Russell, A., & Russell, G. (1996). Positive parenting and boys' and girls' misbehavior during a home observation. *International Journal of Behavioral Development, 19,* 291-307.

Rutter, M. (1990). Some focus and process considerations regarding effects of parental depression on children. *Developmental Psychology, 26,* 60-67.

Rutter, M. (1985). Family and school influences on behavioural development. *Journal of Child Psychology and Psychiatry, 26,* 349-368.

Sameroff, A.J., Seifer, R., Baldwin, A., & Baldwin, C. (1993). Stability of intelligence from preschool to adolescence: the influence of social and family risk factors. *Child Development, 64,* 80-97.

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

Sanson, A., Oberklaid, F., Pedlow, R., & Prior, M. (1991). Risk indicators: assessment of infancy predictors of preschool behavioural maladjustment. *Journal of Child Psychology and Psychiatry, 32,* 609-626.

Satterfield, T., Swanson, J., Schell, A., & Lee, F. (1994). Predictions of anti-social behaviour in attention-deficit hyperactivity disorder boys from aggression/defiance scores. *Journal of the American Academy of Child and Adolescent Psychiatry, 33,* 185-190.

Schachter, S. (1959). *The psychology of affiliation.* Stanford, CA: Stanford University Press.

Schaughency, E., McGee, R., Raja, N., Feehan, M., & Silva, A. (1994). Self-reported inattention, impulsivity, and hyperactivity at ages 15 and 18 years in the general population. *Journal of the American Academy of Child and Adolescent Psychiatry, 33,* 173-184

Schwartz, C.E., Dorer, D.J., Bearslee, W.R., Lavori, P.W. & Keller, M.B. (1990). Maternal expressed emotion and parental affective disorder: Risk for childhood depressive disorder, substance abuse or conduct disorder. *Journal of Psychiatric Research, 24,* 231-250.

Seifer, R., Sameroff, A.J., Baldwin, C.P., & Baldwin, A. (1992). Child and family factors that ameliorate risk between 4 and 13 years of age. *Journal of the American Academy of Child and Adolescent Psychiatry, 31,* 893-903.

Seligman, E., & Peterson, C. (1986). A learned helplessness perspective on childhood depression theory and research. In Rutter, M., Izard, E., Read, B. (Eds). *Depression in young people* (pp. 223-251). New York: Guildford.

Shaw, D.S., Winslow, E., Owens, E., Vondra, J., Cohn, J., & Bell, R. (1998). The development of early externalizing problems among children from low-income families: a transformational perspective. *Journal of Abnormal Child Psychology, 26,* 95-107.

Shaw, D.S., & Bell, R.Q. (1993). Developmental theories of parental contributions to antisocial behavior. *Journal of Abnormal Child Psychology, 21,* 493-518.

Sheeber, L., Hops, H., Andrews, J.A., Alpert, A., & Davis, B. (1998). Interactional processes in families with depressed and nondepressed adolescents: Reinforcement of depressive behaviour. *Behaviour Research and Therapy, 36,* 417-427.

Shelton, K.K., Frick, P.J., & Wootton, J. (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of Clinical Child Psychology, 25,* 317-329.

Shelton, T.L., Barkley, R.A., Crosswait, C., Moorehouse, M., Fletcher, K., Barrett, S., Jenkins, L., & Metevia, L. (1998). Psychiatric and psychological morbidity as a function of adaptive disability in preschool children with aggressive and hyperactive impulsive inattentive behavior. *Journal of Abnormal Child Psychology, 26,* 475-494.

Slep, A.M.S., & O' Leary, S.G. (1998). The effects of maternal attributions on parenting: An experimental analysis. *Journal of Family Psychology, 12,* 234-243.

Slomkowski, C., Klein, R.G., & Manuzza, S. (1995). Is self-esteem an important outcome in hyperactive children? *Journal of Abnormal Child Psychology, 23,* 303-315.

Smalley, L., McGough, J., Del'Homme, M., Newdelman, J., Gordon, E., Kim, T., Liu, A., & McCracken, T. (2000). Familial clustering of symptoms and disruptive behaviors in multiplex families with attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 39,* 1135-1143.

Solantaus-Simula, T., Punamaki, R.L., & Beardslee, W.R. (2002). Children's responses to low parental mood. I: Balancing between active empathy, overinvolvement, indifference, and avoidance. *Journal of the American Academy of Child and Adolescent Psychiatry,41,* 278-286.

Solantaus-Simula, T., Punamaki, R.L., & Beardslee, W.R. (2002). Children's responses to low parental mood. II: Associations with family perceptions of parenting styles and child distress. *American Academy of Child and Adolescent Psychiatry, 41,* 287-295.

Sonuga-Barke, E., Thompson, M., Daley, D., & Lever-Bradbury, C. (2004). Parent training for attention deficit/hyperactivity disorder: Is it as effective when

delivered as routine rather than as specialist care? *British Journal of Clinical Psychology, 43,* 215-228.

Sonuga-Barke, E.J.S. (2002). Psychological heterogeneity in AD/HD-a dual pathway model of behaviour and cognition. *Behavioural Brain Research, 130,* 29-36.

Sonuga-Barke, E.J.S., Daley, D., & Thompson, M. (2002). Does maternal AD/HD reduce the effectiveness of parent training for pre-school children's AD/HD? *Journal of the American Academy of Child and Adolescent Psychiatry, 41,* 696-702.

Sonuga-Barke, E., Daley, D., Thompson, M., Laver-Bradbury, C., & Weeks, A. (2001). Parent-based therapies for preschool attention-deficit/hyperactivity disorder: A randomized, controlled trial with a community sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 40,* 1-7.

Sonuga-Barke, E., Thompson, M., Stevenson, J., Viney, D. (1997). Patterns of behaviour problems among pre-school children. *Psychological Medicine, 27,* 909-918.

Sonuga-Barke, E.J.S., Houlberg, K., & Hall, M. (1994). When is "impulsiveness" not impulsive? The case of hyperactive children's cognitive style. *Journal of Child Psychology and Psychiatry, 35,* 1247-1253.

Sonuga-Barke, E., & Goldfoot, T. (1995). The effect of child hyperactivity on mother's expectations for development. *Child Care and Health Development, 21,* 17-29.

Spencer, T., Wilens, T., Biederman, J., Faraone, S.V., Ablon, J.S., & Lapey, K. (1995). A double-blind, crossover comparison of methyphenidate and placebo in adults with childhood onset attention deficit hyperactivity. *Archives of General Psychiatry, 52,* 434-443.

Spencer, T., Biederman, J., Wilens, T., & Faraone, S. (1994). Is attention deficit hyperactivity disorder in adults a valid disorder? *Harvard Review Psychiatry, 1,* 326-335.

Spitzer, R.L., Endicott, J., & Robins, E. (1978). Research diagnostic criteria: Rationale and reliability. *Archives of General Psychiatry, 35,* 773-783.

Stevenson, J. (1992). Evidence for genetic aetiology in hyperactivity in children. *Behavior Genetics, 22,* 337-344.

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

Stormshak, E., Speltz, M., Deklyen, M., & Greenberg, M. (1997). Observed family interaction during clinical interviews: A comparison of families containing preschool boys with and without disruptive behaviour. *Journal of Abnormal Child Psychology, 25,* 345-357.

Strayer, J. (1987). What children know and feel in response to witnessing affective events. In C. Saani & P.L Harris (Eds.), *Children's understanding of emotions* (pp. 259-289). Cambridge, England: Cambridge University Press.

Stubbe, D.E., Zahner, G.E.P., Goldstein, M.J., & Leckman, J.F. (1993). Diagnostic specificity of a brief measure of expressed emotion: A community study of children. *Journal of Child Psychology and Psychiatry, 34,* 139-154.

Susman, E.J., Trickett, P.K., Iannotti, R.J., Hollebeck, B.E., & Zahn-Waxler, C. (1985). Child rearing patterns in depressed, abusive, and normal mothers. *American Journal of Orthopsychiatry, 55,* 237-251.

Taylor, E. (1999). Developmental neuropsychopathology of attention deficit and impulsiveness. *Developmental Psychopathology, 11,* 607-628.

Taylor, E., Chadwick, O., Heptinstall, E., & Danckaerts, M. (1996). Hyperactivity and conduct problems as risk factors for adolescence development. *Journal of the American Acadmy of Child and Adolescent Psychiatry, 35,* 1312-1226.

Taylor, E., Sandberg, S., Thorley, G., & Giles, S. (1991). *The Epidemiology of Childhood Hyperactivity.* Oxford, England: Oxford University Press.

Taylor, T.K., Schmidt, F., Pepler, D., & Hodgins, C. (1998). A comparison of electric treatment with Webster-Stratton's parents and children series in a children's mental health center: A randomized controlled trial. *Behavior Therapy, 29,* 221-240.

Tenenbaum, H.R., & leaper, C. (1998). Gender effects on Mexican-descent parents' questions and scaffolding during toy play: A sequential analysis. *First Language, 18,* 129-147.

Thomas. A., & Chess, S. (1977). *Temperament and Development.* New York: Brummer/Mazel.

Treuting, J.J., & Hinshaw, S.P. (2001). Depression and self-esteem in boys with attention-deficit/hyperactivity disorder: associations with comorbid aggression and explanatory attributional mechanisms. *Journal of Abnormal Child Psychology, 29,* 23-39.

Vaughn, C., & Leff, J. (1976). The influence of family and social factors on the course of psychiatric illness. *British Journal of Psychiatry, 129,* 125-137.

Vitanza, S.A., & Guarnaccia, C.A. (1999). A model of psychological distress for mothers of children with attention-deficit hyperactivity disorder. *Journal of Child and Family Studies, 8,* 27-45.

Wacharasin, C., Barnard, K., & Spieker, S. (2003). Factors affecting toddler cognitive development in low-income families: Implications for practinioners. *Infants and Young Children, 16,* 175-181.

Wahler, G., & Dumas, E. (1986). Maintenance factors in coercive mother-child interactions: The compliance and predictability hypothesis. *Journal of Applied Behavior Analysis, 19,* 13-22.

Wamboldt, F.S., O'Connor, S.L., Wamboldt, M.Z., Gavin, L.A., & Klinnert, M.D. (2000). The Five Minute Speech Sample in children with asthma: Deconstructing the construct of Expressed Emotion. *Journal of Child Psychology and Psychiatry, 41,* 887-898.

Wamboldt, M.Z., & Wamboldt, F.S. (2000). Role of the family in the onset and outcome of childhood disorders: Selected research findings. *Journal of the American Academy of Child and Adolescent Psychiatry, 39,* 1212-1219.

Wamboldt, F.S., Wamboldt, M.Z., Gavin, L.A., Roesler, T.A., & Brugman, S.M. (1995). Parental criticism and treatment outcome in adolescents hospitalized for severe, chronic asthma. *Journal of Psychosomatic Research, 39,* 995-1005.

Watson, D. (1988). Intraindividual and interindividual analyses of positive and negative affect: Their relationship to health complaints, perceived stress, and daily activities. *Journal of Personality and Social Psychology, 54,* 1020-1230.

Watt, N. (1986). Risk research in schizophrenia and other major psychological disorders. In M. Kessler & S. Goldston (Eds.), *A decade of progress in primary prevention: Primary prevention of psychopathology* (pp. 115-153). Hanover Park, NH: University Press of New England.

Weinstein, C.S., Apfel, R.J., & Weinstein, S.R. (1998). Description of mothers with ADHD with children with ADHD. *Psychiatry, 61,* 12-19.

Weiss, M., Hetchman, L., & Weiss, G. (2000). AD/HD in parents. *Journal of the American Academy of Child and Adolescent Psychiatry,* 39, 1059-1061.

Weiss, G. & Hetchman, L. (1993). *Hyperactive children grown up (2nd ed.): ADHD in children, adolescents, and adults.* New York: Guildford Press.

Weiss, G., & Hetchman, L.T. (1986). *Hyperactive children grown up.*New York: Guildford Press.

Weiss, G., Hechtman, L., Milroy, T., & Perlan, T. (1985). Psychiatric status of hyperactives as adults: a controlled prospective 15-year follow-up of 63 children. *Journal of the American Academy of Child Psychiatry, 24,* 211-220.

Weissman, M.M., Warner, V., Wickramaratne, P.J., Moreau, D.,& Olfson, M. (1997). Offspring of depressed parents: Ten years later. *Archives of General Psychiatry, 54,* 932-940.

Weissman, M.M., Bland, R.C., Canino, G.J., Faravelli, C., Greenwald, S., Hwu, H.G., Karam, E.G., Lee, C.K., Lellouch, J., Lepine, J.P., Newman, S.C., Oakley-Browne, M.A., Rubio-Stipec, M., Wells, J.E., Wickramaratne, P.J., Wittchen, H.U., & Yeh, E.K. (1996). Cross national epidemiology of major depression and bipolar disorders. *Journal of the American Medical Association* , 246, 293-299.

Weissman, M.M., Fendrich, M., Warner, V., & Wickramaratne, P. (1992). Incidence of psychiatric disorder in offspring at high and low risk for depression. *Journal of the American Academy of Child and Adolescent Psychiatry, 31,* 640-648.

Westen, D., Muderrisoglu, S., Fowler, C., Shedler, J., & Koren, D. (1997). Affect regulation and affective experience: Individual differences, group differences, and measurement using a Q-sort procedure. *Journal of Consulting and Clinical Psychology, 65,* 429-439.

Whalen, C.K., & Henker, B. (1992). The social profile of attention deficit-hyperactivity disorder. *Child and Adolescent Psychiatry Clinical North America, 1,* 395-410

Wheeler, J., & Carlson, C.L. (1994). The social functioning of children with ADD with hyperactivity and ADD without hyperactivity: A comparison of their peer relations and social deficits. *Journal of Emotional and Behavioral Disorders, 2,* 2-12.

Willoughby, T., Curran, J., Costello, J., & Angold, A. (2000). Implications of early versus late onset of attention-deficit/hyperactivity disorder symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry, 35,* 579-587.

Wills, T.A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90,* 245-271.

Winefield, H.R., Goldney, R.D., Winefield, A.H., & Tiggemann, M. (1989). The General Health Questionnaire: reliability and validity for Australian youth. *Australia and New Zealand Journal of Psychiatry, 23,* 53-58.

Winsler, A. (1998). Parent-child interaction and private speech in boys with ADHD. *Applied Developmental Science, 2,* 17-39.

Wolraich, M.L., Lambert, E.W., Bickman, L., Simmons, T., Doffing, M.A., & Worley, K.A. (2004). *Developmental and Behavioral Pediatrics, 25,* 41-47.

Wood, D., Bruner, J., & Ross, S. (1976). The role of tutoring in problem-solving. *Journal of Child Psychology and Psychiatry, 17,* 89-100.

Woodward, L., Taylor, E., & Dowdney, L. (1998). The parenting and family functioning of children with hyperactivity. *Journal of Child Psychology and Psychiatry, 39,* 161-169.

Young, S.J. (1999). *The adolescent outcome of hyperactive girls.* PhD Thesis, University of London.

Zentall, S.S. (1985). Stimulus-control factors in search of performance of hyperactive children. *Journal of Learning Disabilities, 18,* 480-485.

Appendix 1: Adult AD/HD Rating Scale

Circle the response which best describes your behaviour over the past six months

	Rarely	Sometimes	Often	Very often
	0	**1**	**2**	**3**
1) Fail to give close attention to details or make careless mistakes at work	0	1	2	3
2) Fidget with hands, feet or squirm in my seat	0	1	2	3
3) Difficulty in sustaining my attention in tasks or fun activities	0	1	2	3
4) Leave my seat in situations in which seating is required	0	1	2	3
5) Don't listen when spoken to directly	0	1	2	3
6) Feel restless	0	1	2	3
7) Don't follow through on instructions and fail to finish work	0	1	2	3
8)Have difficulty engaging in leisure	0	1	2	3
9) Have difficulty organising tasks and activities	0	1	2	3
10) Feel "on the go" or driven by a motor	0	1	2	3
11) Avoid , dislike or reluctant to engage in work that requires sustained mental activity	0	1	2	3
12) Talk excessively	0	1	2	3
13) Lose things necessary for tasks or activities	0	1	2	3
14) Blurt out answers before questions have been completed	0	1	2	3
15) Easily distracted	0	1	2	3
16) Have difficulty waiting my turn	0	1	2	3
17) Forgetful in daily activities	0	1	2	3
18) Interrupt or intrude on others	0	1	2	3

Appendix 2: **Strengths and Difficulties Questionnaire** P4-16

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months.

Child's Name ..... Male/Female

Date of Birth .....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children (treats, toys, pencils etc.)	☐	☐	☐
Often has temper tantrums or hot tempers	☐	☐	☐
Rather solitary, tends to play alone	☐	☐	☐
Generally obedient, usually does what adults request	☐	☐	☐
Many worries, often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, down-hearted or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often lies or cheats	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often volunteers to help others (parents, teachers, other children)	☐	☐	☐
Thinks things out before acting	☐	☐	☐
Steals from home, school or elsewhere	☐	☐	☐
Gets on better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Sees tasks through to the end, good attention span	☐	☐	☐

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side

Overall, do you think that your child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No	Yes - minor difficulties	Yes - definite difficulties	Yes - severe difficulties
☐	☐	☐	☐

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

Less than a month	1-5 months	6-12 months	Over a year
☐	☐	☐	☐

- Do the difficulties upset or distress your child?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

- Do the difficulties interfere with your child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
HOME LIFE	☐	☐	☐	☐
FRIENDSHIPS	☐	☐	☐	☐
CLASSROOM LEARNING	☐	☐	☐	☐
LEISURE ACTIVITIES	☐	☐	☐	☐

- Do the difficulties put a burden on you or the family as a whole?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

Signature ..... Date .....

Mother/Father/Other (please specify:)

Thank you very much for your help

Appendix 3: General Health Questionnaire (12 item version)

Please read this carefully:

We should like to know if you have had any medical complaints and how your health has been in general over the past few weeks. Please answer all the questions on the following page simply by underlining the answer which you think most nearly applies to you. Remember that we want to know present and recent complaints, not those you had in the past.

It is important that you try to answer all the questions.

Have you recently:

1. been able to concentrate on whatever you are doing?	Better than usual	Same as usual	Less than usual	Much less than usual
2. lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
3. felt you are a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
4. felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less than usual
5. felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
6. felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
7. been able to enjoy your normal day to day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
8. been able to face up to your problems?	More so than usual	Same as usual	Less able than usual	Much less than usual
9. been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
10. been losing confidence in yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
11. been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
12. been feeling reasonably happy, all things considered?	More so than usual	About the same as usual	Less so than usual	Much less than usual

Appendix 4: Alabama Parenting Questionnaire

Please circle the answer which best describes your reactions towards your child.

1	2	3	4	5
Never	**Hardly ever**	**Sometimes**	**Often**	**Always**

1. You have a friendly talk with your child
   1 2 3 4 5

2. You volunteer to help with special activities that your child is involved (e.g., sports, Boy/Girl scouts, church youth groups)
   1 2 3 4 5

3. You play games or do other fun things with your child
   1 2 3 4 5

4. You ask your child about his/her day in school
   1 2 3 4 5

5. You help your child with his/her homework
   1 2 3 4 5

6. You ask your child what his/her plans are for the coming day
   1 2 3 4 5

7. You drive your child to a special activity
   1 2 3 4 5

8. You talk to your child about his/her friends
   1 2 3 4 5

9. Your child helps plan family activities
   1 2 3 4 5

10. You attend parent-teacher meetings, parent/teacher conferences, or other meetings at your child's school
    1 2 3 4 5

11. You let your child know when he/she is doing a good job with something
    1 2 3 4 5

12. You reward or give something extra to your child for obeying you or behaving well
    1 2 3 4 5

13. You compliment your child when he/she does something well
    1 2 3 4 5

1	2	3	4	5
Never	**Hardly ever**	**Sometimes**	**Often**	**Always**

14. You praise your child if he/she behaves well
    1 2 3 4 5

15. You hug or kiss your child when he/she has done something well
    1 2 3 4 5

16. You tell your child that you like when he/she helps around the house
    1 2 3 4 5

17. Your child fails to leave a note or let you know where he/she is going
    1 2 3 4 5

18. Your child stays out in the evening past the time he/she is supposed to be home
    1 2 3 4 5

19. Your child is out with friends you do not know
    1 2 3 4 5

20. Your child goes out without a set time to be home
    1 2 3 4 5

21. Your child is out after dark without an adult with him/her
    1 2 3 4 5

22. You get so busy that you forget where your child is and what he/she is doing
    1 2 3 4 5

23. You don't check that your child comes home from school when he/she is supposed to
    1 2 3 4 5

24. You don't tell your child where you are going
    1 2 3 4 5

25. Your child comes home from school more than an hour past the time you expect him/her
    1 2 3 4 5

26. Your child is at home without adult supervision
    1 2 3 4 5

27. You threatened to punish your child and then do not actually punish him/her
    1 2 3 4 5

1	2	3	4	5
Never	**Hardly ever**	**Sometimes**	**Often**	**Always**

28. Your child talks to you out of being punished after he/she has done something wrong

1 2 3 4 5

29. You feel that getting your child to obey you is more trouble than it's worth

1 2 3 4 5

30. You let your child out of a punishment early (e.g., lift restrictions earlier than you originally said)

1 2 3 4 5

31. Your child is not punished when he/she has done something wrong

1 2 3 4 5

32. The punishment you give your child depends on your mood

1 2 3 4 5

33. You spank your child with your hand when he/she has done something wrong

1 2 3 4 5

34. You slap your child when he/she has done something wrong

1 2 3 4 5

35. You hit your child with a belt, switch, or other object when he/she has done something wrong

1 2 3 4 5

Appendix 5: Information letter of Study 1

Dear Parent,

My name is Lamprini Psychogiou and I am a Ph.D student at the Psychology Department, University of Southampton. I would like to ask your participation in a study that examines children's behaviour and parenting. The study involves completion of questionnaires. If you have more than one child in the school and receive more than one pack of questionnaires then please complete the questionnaires for your eldest child.

Personal information will not be released to or viewed by anyone other than researchers involved in this project. Results of this study will not include your name or any other identifying characteristics. Your participation is voluntary and you may withdraw your participation at any time. A summary of results will be supplied upon request. If you are willing to participate in this study, please complete the consent form and the questionnaires and return them to your child's school.

If you have any questions please ask them now or contact Lamprini Psychogiou at (023) 8059 4594 or e-mail: L.Psychogiou@soton.ac.uk

Yours Sincerely

Lamprini Psychogiou and Dr Dave Daley

Appendix 6: Consent form of Study 1

Statement of Consent of Study 1

I _____ have read the above information letter.
I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentially. In signing this consent letter, I am not waiving my legal claims, rights, or remedies.

I give consent to participate in the above study: Yes No

I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.
Phone: (023) 8059 3995.

Appendix 7: Werry-Weiss-Peters-Hyperactivity Scale

	No or hardly ever	Yes fairly often	Yes very often
1. During meals is the child up and down at the table?			
2. During meals, does the child interrupt without regard to what others are trying to say?			
3. During meals, does the child wriggle?			
4. During meals, does the child fiddle with things?			
5. During meals, does the child talk too much?			
6. When watching television, does the child get up and down during the programme?			
7. When watching television, does the child wriggle?			
8. When watching television, does the child play with objects or his/her own body?			
9. When watching television, does the child talk too much?			
10. When watching television does the child play which interrupts others ability to watch the programme?			
11. When drawing, colouring, writing or doing homework, does the child get up and down?			
12. When drawing, colouring, writing or doing homework, does the child wriggle?			
13. When drawing, colouring, writing or doing homework, does the child play with objects or his/her own body?			
14. When drawing, colouring, writing or doing homework, does the child talk too much?			
15. When drawing, colouring, writing or doing homework, does the child require adult supervision or attendance?			
16. Is the child unable to play quietly?			
17. When at play, does the child keep going from one toy to another?			
18. When at play, does the child seek attention of an adult?			
19. When at play, does the child talk too much?			
20. When at play, does the child disrupt the play of other children?			
21. Does the child have difficulty settling down for sleep?			
22. Does the child get too little sleep?			

23. Is the child restless during sleep?			
24. Is the child restless during travel?			
25. Is the child restless during shopping (including touching everything)?			
26. Is the child restless during church, at the cinema, or watching a school play etc?			
27. Is the child restless while visiting friends or relatives?			

Appendix 8: General Health Questionnaire (30 item version)

Please read this carefully: We should like to know if you have had any medical complaints and how your health has been in general over the past few weeks. Please answer all the questions on the following page simply by underlining the answer which you think most nearly applies to you. Remember that we want to know present and recent complaints, not those you had in the past. It is important that you try to answer all the questions.
Have you recently:

1. been able to concentrate on whatever you are doing?	Better than usual	Same as usual	Less than usual	Much less than usual
2. lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
3. been having restless, disturbed nights?	Not at all	No more than usual	Rather more than usual	Much more than usual
4. been managing to keep yourself busy and occupied?	More so than usual	Same as usual	Rather less than usual	Much less useful
5. been getting out of the house as much as usual?	More so than usual	Same as usual	Less than usual	Much less than usual
6. been managing as well as most people would in your shoes?	Better than most	About the same	Rather less well	Much less well
7. felt on the whole you were doing things well?	Better than usual	About the same	Less well than usual	Much less well
8. been satisfied with the way you have carried out your task?	More satisfied	About the same	Less satisfied than usual	Much less satisfied
9. been able to feel warmth and affection for those near to you?	Better than usual	About the same as usual	Less well than usual	Much less well
10. been finding it easy to get on with people?	Better than usual	About the same	Less well than usual	Much less well
11. spent much time chatting with people?	More time than usual	About same as usual	Less time than usual	Much less than usual
12. felt you are playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
13. felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable

14. felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
15. felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
16. been finding life a struggle all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual
17. been able to enjoy your normal day to day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
18. been taking things hard?	Not at all	No more than usual	Rather more than usual	Much more than usual
19. been getting scared or panicky for no good reason?	Not at all	No more than usual	Rather more than usual	Much more than usual
20. been able to face up to your problems?	More so than usual	Same as usual	Less able than usual	Much less able
21. found everything getting on top of you?	Not all all	No more than usual	Rather more than usual	Much more than usual
22. been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
23. been losing confidence in yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
24. been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
25. felt that life is entirely hopeless?	Not at all	No more than usual	Rather more than usual	Much more than usual
26. been feeling hopeful about your future?	More so than usual	About the same as usual	Less so than usual	Much less than usual
27. been feeling reasonably happy, all things considered?	More so than usual	About the same as usual	Less so than usual	Much less than usual
28. been feeling nervous and strung-up all the time?	Not at All	No more than usual	Rather more than usual	Much more than usual
29. felt that life isn't worth living?	Not at all	No more than usual	Rather more than usual	Much more than usual

30. found at times you couldn't do anything because your nerves were too bad?	Not at all	No more than usual	Rather more than usual	Much more than usual

Appendix 9: Behaviour Checklist

To give us an overall picture of your child can we ask you to fill in the following checklist of children's behaviour. Please fill in each question even if you feel the questions are not relevant. Opposite each behaviour, please put a cross (X) in the columns which you think applies best to your child. Also please circle the bold numbering, if the particular behaviour is a problem to you or to your child e.g., **(Not a problem) 0 1 2 3 4 5 (Severe problem)**.

1.	Usually has a good appetite	
	Sometimes has a poor appetite	
	Nearly always has a poor appetite	

2.	Not faddy about eating	
	Has a few fads, won't eat certain things	
	Very faddy, won't eat many different foods	

Is eating or appetite a problem? (Not at all) 0 1 2 3 4 5 (Severe problem)

3.	Never wets at night	
	Wets the bed up to once or twice a week	
	Wets the bed three or more times a week	

4.	Never wets during the day	
	Wets during the day up to once or twice a week	
	Wets during the day three or more times a week	

Is the wetting a problem? (Not at all) 0 1 2 3 4 5 (Severe problem)

5.	Completely bowel trained. Never dirties pants.	
	Occasionally soils, up to once or twice a week	
	Soils pants three or more times a week	

Is this a problem for you? (Not at all) 0 1 2 3 4 5 (Severe problem)

6.	Easy to get to bed and to sleep	
	Some difficulties in settling at bedtime	
	Often takes over an hour to settle at bedtime	

7.	Hardly ever wakes at night	
	Sometimes wakes at night	
	Frequently wakes at night and difficult to settle	

8.	Never sleeps with parent	
	Occasionally sleeps with parent because upset or doesn't want to sleep alone	
	Frequently sleeps with parent because upset or doesn't want to sleep alone	

Is the settling or sleep pattern a problem? (Not at all) 0 1 2 3 4 5 (Severe problem)

9.	Not active enough	
	Not markedly active	
	Very active	
	Too active, won't sit still for meals or at other times for more than 5 minutes	

10.	Concentrates on play indoors for 15 minutes or more	
	Concentration 5 to 15 minutes or very variable	
	Hardly ever concentrates for more than 5 minutes on play indoors	

Is the activity a problem? (Not at all) 0 1 2 3 4 5 (Severe problem)

11.	Not clingy, can easily be left with people he/she knows	
	Gets upset if away from mother, but gets over it	
	Very clingy; can't be left with others	

12.	Independent; doesn't ask for a lot of attention	
	Sometimes asks for a lot of attention, follows mother around all day	
	Demands too much attention, follows mother around all day	

13.	Easy to manage and control	
	Sometimes difficult to manage or control	
	Frequently very difficult to manage or control	

14.	Doesn't have temper tantrums	
	Sometimes has temper tantrums (last a few minutes)	
	Has frequent or long temper tantrums	

Is the control of your child a problem for you? (Not at all) 0 1 2 3 4 5 (Severe problem)

15.	Usually happy except for brief periods, when tired for instance	
	Sometimes miserable or irritable	
	Frequently miserable or irritable	

16.	Not a worrier	
	Sometimes worried for short periods	
	Has many different worries, broods over things, e.g. illness, accidents, monsters, changes	

Are the worries a problem? (Not at all) 0 1 2 3 4 5 (Severe problem)

17.	Few or no fears	
	Has some fears	
	Very fearful, has lots of different fears	

Are the fears a problem? (Not at all) 0 1 2 3 4 5 (Severe problem)

18.	Gets on well with all brothers and sisters	
	Some difficulties with brothers or sisters	
	Gets on badly with brothers or sisters	
19.	Gets on well with other children	
	Some difficulties playing with other children	
	Finds it very difficult to play with other children	

Are your child's relationships a problem for you? (Not at all) 0 1 2 3 4 5 (Severe problem)

Appendix 10: Information letter of Study 2

Dear Parent,

My name is Lamprini Psychogiou a Ph.D student in Psychology at the University of Southampton. I am requesting your participation in a study examining parenting. This will involve completion of questionnaires, be videotaped during a 10 minutes play interaction with your child at your convenience, and have a short chat with me, which I would have to audiotape.
I would like to try and compensate for your time by offering you a £5 book or Boots voucher.

The aim of this research is to examine differences in parenting between children with and without behavioural problems. It is expected that mothers of children with behavioural problems will differ in parenting, psychological adjustment, and mother-child interactions. Your data which form part of a normal (non behavioural problem) control group will increase our understanding of parenting in general, and give us data with which to compare to an existing groups of parents of children with behavioural problems. Personal information will not be released to or viewed by anyone other than researchers involved in this project. Results of this study will not include your name or any other identifying characteristics. Your participation is voluntary and you may withdraw your participation at any time. A summary of results will be supplied upon request. If you are willing to participate in this study, please complete the consent letter and return it to your child's nursery.

If you have any questions please ask them now or contact Lamprini Psychogiou at (023) 8059 4594 or e-mail: L.Psychogiou@soton.ac.uk

Yours Sincerely

Lamprini Psychogiou and Dr Dave Daley

Appendix 11: Consent form of Study 2

Statement of Consent of Study 2

I _____ have read the above informed consent form.
I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentially. In signing this consent letter, I am not waiving my legal claims, rights, or remedies.

I give consent to participate in the above study: Yes No

Child's name _____

Address _____

_____ Postcode _____

Telephone _____

Signature Date

Name

I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.
Phone: (023) 8059 3995.

Appendix 12: AD/HD Rating Scale

Name:_____

Date of birth: _____

Each rating should be considered in the context of what is appropriate for the age of the children you are rating.

Frequency Code: 0=never 1=occasionally 2=often 3=very often

2) Fails to give attention to details or makes careless mistakes in schoolwork.	0	1	2	3
3) Has difficulty sustaining attention to tasks or activities.	0	1	2	3
3) Does not seem to listen when spoken to directly.	0	1	2	3
4) Does not follow through on instructions and fails to finish schoolwork (not due to oppositional behaviour or failure to understand).	0	1	2	3
5) Has difficulty organising tasks and activities.	0	1	2	3
6) Avoids, dislikes or is reluctant to engage in tasks that require sustained mental effort.	0	1	2	3
7) Loses things necessary for tasks or activities (school assignments, pencils or books).	0	1	2	3
8) Is easily distracted by extraneous stimuli.	0	1	2	3
9) Is forgetful in daily activities.	0	1	2	3
10) Fidgets with hands and feet or squirms in seat.	0	1	2	3
11) Leaves seat in classroom or in other situations in which remaining seated is expected.	0	1	2	3
12) Runs about or climbs excessively in situations in which remaining seated is expected.	0	1	2	3
13) Has difficulty playing or engaging in leisure activities quietly.	0	1	2	3
14) Is "on the go" or often acts as if "driven by a motor".	0	1	2	3
15) Talks excessively.	0	1	2	3
16) Blurts out answer before questions have been completed.	0	1	2	3
17) Has difficulty waiting in line.	0	1	2	3
18)Interrupts or intrudes on others (e.g., butts into conversations or games)	0	1	2	3

Appendix 13: **Strengths and Difficulties Questionnaire** **T4-16**

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months or this school year.

Child's Name ..... Male/Female

Date of Birth .....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children (treats, toys, pencils etc.)	☐	☐	☐
Often has temper tantrums or hot tempers	☐	☐	☐
Rather solitary, tends to play alone	☐	☐	☐
Generally obedient, usually does what adults request	☐	☐	☐
Many worries, often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, down-hearted or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often lies or cheats	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often volunteers to help others (parents, teachers, other children)	☐	☐	☐
Thinks things out before acting	☐	☐	☐
Steals from home, school or elsewhere	☐	☐	☐
Gets on better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Sees tasks through to the end, good attention span	☐	☐	☐

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side

Overall, do you think that this child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No	Yes - minor difficulties	Yes - definite difficulties	Yes - severe difficulties
☐	☐	☐	☐

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

Less than a month	1-5 months	6-12 months	Over a year
☐	☐	☐	☐

- Do the difficulties upset or distress the child?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

- Do the difficulties interfere with the child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
PEER RELATIONSHIPS	☐	☐	☐	☐
CLASSROOM LEARNING	☐	☐	☐	☐

- Do the difficulties put a burden on you or the class as a whole?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

Signature ..... Date .....

Class Teacher/Form Tutor/Head of Year/Other (please specify:)

Thank you very much for your help

Appendix 14: The Aggression Questionnaire

Please answer the following questions according to this scale

1=Extremely uncharacteristic of me **2=Moderately uncharacteristic of me**
3=Slightly uncharacteristic of me **4=Slightly characteristic of me**
5=Moderately characteristic of me **6=Extremely characteristic of me**

1) Given enough provocation I may hit another person
1 2 3 4 5 6

2) There are people that push me so far that we came to blows
1 2 3 4 5 6

3) I have threatened people I know
1 2 3 4 5 6

4) I often find myself disagreeing with people
1 2 3 4 5 6

5) I can't help getting into arguments when people disagree with me
1 2 3 4 5 6

6) My friends say that I am somewhat argumentative
1 2 3 4 5 6

7) I flare up quickly but get over it quickly
1 2 3 4 5 6

8) Sometimes I fly off the handle for no good reason
1 2 3 4 5 6

9) I have trouble controlling my temper
1 2 3 4 5 6

10) At times I feel I have gotten a raw deal out of life
1 2 3 4 5 6

11) Other people always seem to get the breaks
1 2 3 4 5 6

12) I wonder why sometimes I feel so bitter about things
1 2 3 4 5 6

Appendix 15: The Interpersonal Reactivity Index (Adapted version)

Please circle the answer that best describes your reactions towards your child

Answer Scale:

A	B	C	D	E
Does not describe me well				**Describes me well**

1) I often have tender, concerned feelings for my child
A B C D E

2) I sometimes find it difficult to see things from my child's point of view
A B C D E

3) Sometimes I don't feel very sorry for my child when he/she is having problems
A B C D E

4) When my child is caught in emergency situations, I feel apprehensive and ill-at-ease
A B C D E

5) I try to look at my child's side of disagreement before I make a decision
A B C D E

6) When I see my child being taken advantage of, I feel kind of protective towards him/her
A B C D E

7) I sometimes feel helpless when my child is in a middle of a very emotional situation
A B C D E

8) I sometimes try to understand my child better by imagining how things look from his/her perspective
A B C D E

9) When I see my child get hurt, I tend to remain calm
A B C D E

10) My child's misfortunes do not usually disturb me a great deal
A B C D E

A B C D E

Does not describe me well **Describes me well**

11) If I am sure I am right about something, I don't waste much time listening to my child's arguments

A B C D E

12) If my child is in a tense emotional situation scares me

A B C D E

13) When I see my child being treated unfairly, I sometimes don't feel very much pity for him/her

A B C D E

14) I am usually pretty effective in dealing with my child's emergencies

A B C D E

15) I am often quite touched by things that I see happen to my child

A B C D E

16) I always try to take an objective approach to dealing with my child

A B C D E

17) In dealings with my child I would describe myself as a pretty soft-hearted person

A B C D E

18) I tend to lose control during my child's emergencies

A B C D E

19) When I am upset at my child, I usually try to "put myself in his/her shoes" for a while

A B C D E

20) When I see my child who badly needs help in an emergency, I go to pieces

A B C D E

21) Before criticising my child, I try to imagine how I would feel if I were in his/her place

A B C D E

Appendix 16: Information letter for parents from AD/HD support groups of Study 3

Dear Parent,

We are asking your participation in a study to help us further our research examining parents of children with adjustment problems. Our research will ultimately help Psychologists working with families with behavioural difficulties to understand the complex relationship between parental and child behaviour.

We are also interested in identifying questions on our empathy questionnaire, which are unhelpful or difficult to understand. With this in mind you might think that some of these questions are rather odd or bizarre, and you would probably be right! However if you think a particular question is odd we would still like you to answer it to the best of your ability. We realise that these questionnaires are quite long but we would really appreciate your help!

Once you have completed the questionnaires we would also like to ask you to participate in a short-recorded telephone interview (about 8 minutes) where we would ask you to describe your child. We would also like to ask your permission to give a short questionnaire to your child's teacher, which is identical to the questions on the nest page.

If you would like to discuss the questionnaires before completing them or would like some help completing them then please contact Lamprini Psychogiou on (023) 8059 4593 or email: L.Psychogiou@soton.ac.uk

Yours sincerely,

Dr Dave Daley and Lamprini Psychogiou

Appendix 17: Consent form for parents from AD/HD support groups of Study 3

Statement of Consent of Study 3

I _____ have read the above informed consent form.
I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentially. In signing this consent letter, I am not waiving my legal claims, rights, or remedies.

I give consent to participate in the above study: Yes No

I _____ give my consent to participate in the study.

I also give my consent:

1) To participate in the short telephone interview Yes No

2) My telephone number is _____

3) For the teacher to complete a questionnaire Yes No

The name of the teacher is _____

The address of the school is _____

_____

Child's name _____

Address _____

_____ Postcode _____

Telephone _____

Signature Date

Name

I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: (023) 8059 3995.

Appendix 18: Information letter for parents from schools of Study 3

Parenting and Children's Adjustment

Dear Parent Mothers copy

We are asking your participation in a study to help us to further our research examining parents of children with adjustment problems. Before we conduct research with children and parents recruited through child and adolescent mental health services, we need to test our measures on a general population sample of parents and children. Our research will ultimately help Psychologists working with families with behavioural difficulties to understand the complex relationship between parental and child behaviour.

We are also interested in identifying questions on our questionnaire, which are unhelpful or difficult to understand. With this in mind you may think that some of these questions are rather odd or bizarre, and you would probably be right! However if you think a particular question is odd we would still like you to answer it to the best of your ability. We realise that these questionnaires are quite long but we would really appreciate your help!

Once you have you have completed the questionnaire we would also like to ask you to participate in a short-recorded telephone interview (about 8 minutes) where we would ask you to describe your child. We would also like to ask you permission to give a short questionnaire to your child's teacher, which is identical to the questions on the next page.

If you have more than one child at the Fair Oak School and have received more than one questionnaire pack then please just complete the questionnaires for your eldest child. We realise that your spare time is precious and regret that due to lack of funds we would not be able to compensate you directly for the time it would take to complete our study. However we are able to donate £1 to your child's school for each parent who participates.

If you would like to discuss the questionnaires before completing them or would like some help completing them then please contact Lamprini Psychogiou on 023 8059 4594 or e-mail: lp21@soton.ac.uk

Yours sincerely,

Dr Dave Daley and Lamprini Psychogiou

Appendix 19: Consent form for parents from schools of Study 3

Statement of Consent of Study 3

I _____ have read the above informed consent form.
I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentially. In signing this consent letter, I am not waiving my legal claims, rights, or remedies.

I give consent to participate in the above study: Yes No

I _____ give my consent to participate in the study. I also give my consent:

1) To participate in the short telephone interview Yes No

My telephone number is _____

2) For my child's teacher to complete a questionnaire Yes No

3) To be contacted about future studies Yes No

Child's name _____

Address _____

_____ Postcode _____

Telephone _____

Signature Date

Name

I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.
Phone: (023) 8059 3995.