

PARENTAL ATTRIBUTIONS FOR INATTENTIVE, IMPULSIVE AND  
OPPOSITIONAL CHILD BEHAVIOURS

by

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### Abstract

This study examined parental attributions for child behaviours characteristic of two childhood externalizing disorders, Attention Deficit Hyperactivity Disorder (ADHD) and Oppositional Defiant Disorder (ODD). While a few previous studies have compared parents' perceptions of and responses to ADHD and ODD behaviours, no studies to date have compared attributions for the inattentive versus impulsive/hyperactive child behaviours consistent with DSM-IV's two-dimensional model of ADHD. Thus, a primary goal of this study was to compare parents' attributions for and responses to three types of child behaviour: inattention, impulsivity and opposition-defiance. This study also examined the impact of behavioural context (i.e., the behaviours that precede a target behaviour) on attributions for and reactions to these distinct types of child behaviour. Fifty-two mothers and fathers of elementary-school aged children with ADHD read scenarios depicting the three types of target child behaviours, each preceded by a context of other inattentive, impulsive or oppositional behaviours, and responded to rating scales assessing their attributions for and reactions to the target child behaviour. Results indicated that parents showed significant differences in their attribution and response ratings across the three types of child behaviour, perceiving oppositional behaviours as most controllable by the child, most intentionally performed, most worthy of

blame and as eliciting the most negative reactions compared with impulsive and inattentive behaviours. Impulsive behaviours, in turn, were perceived as more controllable by the child, more intentionally performed, more worthy of blame, and as eliciting more negative reactions compared with inattentive behaviours. The impact of behavioural context on parental attributions and reactions was examined by comparing parents' responses to inattentive and impulsive child behaviours that were preceded by either a context of other inattentive or impulsive behaviours, or a context of oppositional child behaviours. Results revealed little impact of behavioural context on parents' attributions and reactions. Finally the effects of maternal depressed mood and child age on parents' attributions for child behaviour were examined. In this sample, no associations were found between these two variables and parents' attributions.

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This thesis begins by providing general background information regarding attribution theory and dimensions along which attributions may be formed. Next, the study of attributions across several areas of family research is reviewed, followed by a brief discussion of parent and child characteristics that have been associated with parents' attributions for child behaviour. The focus of the literature review then shifts to a discussion of disruptive child behaviour disorders, specifically Attention Deficit Hyperactivity Disorder (ADHD) and Oppositional Defiant Disorder (ODD). The few studies that have examined parents' attributions for child behaviours reflecting ADHD and ODD are reviewed, and the co-occurrence of ADHD and ODD child behaviours is considered. Finally, the distinction between two types of ADHD child behaviours, inattention and impulsivity, is discussed. The introduction is followed by an overview of the current investigation and an outline of the specific research questions and hypotheses. This is followed by a description of the methodology that was employed to examine attributions for inattentive, impulsive, and oppositional child behaviours in parents of children with ADHD. The paper concludes with a presentation and discussion of the study's findings.

### Attribution Theory

The literature on social cognition has shown that people's reactions to the people around them are linked to their interpretations of others' behaviour, or their beliefs

about why people do what they do. Attribution theory is an information-processing approach which views social interactions as dependent upon an individual's ongoing assessment of others and their behaviour (Dix & Grusec, 1985). Heider (1958) proposed that the inferences people make about the people and events in their environment influence their behaviour and that these inferences, whether accurate or not, must be considered to understand behaviour in social interactions. Subsequent theorists have followed this work by focusing on the process of attribution formation (Jones & Davis, 1965, Kelly, 1967), or by focusing on the nature and consequences of attributions (Weiner, 1980). Much of the early attribution literature focused on adults' attributions for the behaviour of hypothetical others (e.g., Weiner & Kukla, 1970). Over time, however, there has been increasing application of attribution theory to the study of close relationships (e.g., marital, parent-child).

Weiner (1980) has offered one of the most prominent frameworks for understanding the consequences of causal attributions, suggesting that affective and behavioural responses to the actions of others are influenced by one's causal attributions or explanations regarding the factors that produce an event. Specifically, Weiner (1986) describes three dimensions along which people make causal attributions: locus, controllability, and stability. Inferences about causal locus indicate whether the cause of

a behaviour is perceived as reflecting some characteristic of the actor versus factors external to the actor.

Inferences about a cause's stability are related to expectations about the reoccurrence of the cause, and inferences about control reflect the extent to which the cause can or cannot be influenced.

Much empirical research has offered support for the association between causal attributions and affective and behavioural responses (e.g., Dix & Grusec, 1985; Fincham & Bradbury, 1992; Larrance & Twentymen, 1983; Weiner, 1980). For example, Schmidt and Weiner (1988) presented college students with vignettes describing an individual who needed to borrow class notes. One vignette described an individual needing to borrow class notes because he had gone to the beach rather than to class (a controllable cause), whereas a second vignette reported that the individual needed to borrow class notes due to vision problems (an uncontrollable cause). Respondents felt more sympathy toward and indicated that they would loan their notes to the individual who did not have notes due to the uncontrollable cause. On the other hand, respondents were more likely to report angry reactions and the intent to not loan notes to the person who did not have notes due to a controllable cause.

Elaborating on Weiner's (1986) model, Fincham and Emery (1988) demonstrated that judgments on the dimension of control serve as a summary index of responsibility-related decisions and attributions. That is, when one can

potentially control a behaviour, one can be held accountable for that behaviour, particularly if that behaviour violates a standard. Supporting the relationship between the dimension of control and attributions of responsibility, the correlations between control and other causal attributions are significantly lower than the correlations between control and responsibility attributions (Fincham & Emery, 1988). Weiner agrees that attributions formed along the causal dimension of controllability play an important role in determining perceptions of responsibility, but emphasizes that while controllability is an inference about the cause of a behaviour or event, responsibility is an inference about the person who performed the behaviour (Weiner, 1993). Empirical studies suggest stronger relationships between responsibility attributions and behavioural responses than between causal attributions and behaviour (Bradbury & Fincham, 1992; Miller & Bradbury, 1995).

The attribution of responsibility involves making a judgment about an individual's accountability for an event. People are usually not held accountable for negative behaviour unless they possess certain capacities, for example, a young child may not have the capacity to appreciate that a behaviour is inappropriate. Limitations in such capacities have been found to have an important mitigating influence on adults' judgments of children's responsibility (Dix & Grusec, 1985; Fincham & Roberts, 1985). Similarly, whether an individual is perceived as

having a disability may influence others' judgments of that individual's responsibility for the behaviours they exhibit. For example, persons with uncontrollable physical ailments such as blindness or dementia are less likely to be held responsible for their ailment compared with individuals with behavioural and mental problems that are perceived to be controllable by the individual. Similarly, individuals who are held responsible for their ailments evoke less pity, more anger, and lower help-giving intentions from adult respondents than do individuals with ailments for which they are not perceived as responsible (Weiner, 1991).

The determination of whether an individual is responsible for an act is closely linked to perceptions that the individual intended to perform the act and freely chose to perform the behaviour (Hart, 1968). For example, if a child with the genetic condition Tourette's Syndrome (characterized by motor and vocal tics) performs an inappropriate behaviour, such as uttering an odd grunting sound, it is likely that one who knew of the child's condition would infer that the child did not intend or freely choose to exhibit that behaviour, and thus decide that the child is not personally responsible for the odd behaviour.

Finally, blame attributions are evaluative judgments about fault and liability for censure (Shaver, 1985). More recently, Weiner (1991) conceptualized blame as a blend of social cognition (attributions of responsibility) and

emotion (anger). Even if a person is judged responsible for a behaviour he or she exhibits, the individual may or may not be blamed for exhibiting the behaviour. For example, while an individual would conclude that a teenager who pushed a younger child is responsible for his or her action if the act was completed intentionally, one's decision to blame the teenager for pushing the child would depend on the mitigating circumstances from which one could infer the teenager's goal. An individual would not blame the teenager for the action if that person believed that the teenager's behaviour was performed to remove the child from the path of a moving car. On the other hand, one would judge the teenager to be blameworthy if it were believed that the teenager exhibited the behaviour to show off to his or her peers.

In summary, the social cognition literature has examined individuals' explanations for and judgments about the behaviour of others along a variety of dimensions reflecting causal attributions, attributions of responsibility and attributions of blame. A recent meta-analytic review of parents' attributions for child behaviour suggests that all three types of attributions are associated with parent satisfaction and/or child adjustment (Joiner & Wagner, 1996). Therefore, traditional causal attributions (the dimensions of locus, control and stability), as well as attributions of responsibility and blame were examined in the current investigation.

### Attribution Theory and Families

In recent years, there has been increasing attention paid to the role of cognition in family functioning (Fincham & Bradbury, 1990; Sigel, McGillicuddy, & Goodnow, 1992). In particular, studies have begun to accumulate in the marital, developmental, and child clinical literatures which suggest that family members' beliefs about why their spouses, children or other relatives behave as they do, and whether they are responsible and to blame for their behaviour, have important implications for family functioning.

Research in the marital literature has found that maritally-distressed spouses tend to make attributions for partner behaviour that accentuate the impact of negative partner behaviours and are associated with negative affect and punitive responses directed toward the partner (Bradbury, Beach, Fincham, & Nelson, 1996; Fincham, Beach, & Nelson, 1987). For example, Fincham and Bradbury (1992) found that the extent to which wives viewed their spouses as responsible for their negative behaviour was associated with the amount of anger wives exhibited during a problem-solving interaction with their husbands.

Other research has examined attributions in families of persons with mental disorders such as schizophrenia. For example, Brewin, MacCarthy, Duda, and Vaughn (1991) found that although relatives made predominantly internal, universal, and uncontrollable attributions for the onset or exacerbation of their family member's mental illness, they

perceived antisocial behaviours exhibited by the patient as caused by relatively more personal, controllable factors. Further, perceptions of these behaviours as caused by factors personal and controllable by the patient were associated with greater hostility and criticism. Similarly, Barrowclough, Johnston, and Tarrier (1994) found that hostile relatives of persons with schizophrenia were more likely to attribute schizophrenia to causes controllable by and personal to the patient.

Work in the family therapy literature has also called attention to the role of attributions in family dysfunction and in family therapy. For example, Mas, Alexander, and Turner (1991), in a sample of families of delinquent adolescents, found that high-conflict families formed dispositional attributions in explaining one another's positive and negative behaviours, whereas dispositional attributions were used to explain only positive behaviours in low-conflict families.

The parent-child relationship appears to be a particularly important close relationship in which to investigate attributions. Inherent in the parent-child relationship are a number of characteristics that have been found to increase the likelihood that attributions are formed to explain behaviour (Hewstone, 1989). For example, the parent carries with him or her the expectation that there will be continued interaction with the child on a long-term basis. Also, a major task of the parent is to



guide and control child behaviour. Therefore, it is reasonable to expect that parents frequently engage in the types of attempts to understand their children's behaviour that are emphasized in attribution theory (Miller, 1995).

A growing number of studies in the developmental literature have examined parents' attributions for child behaviour. These studies highlight the importance of parental attributions in building a model of parent-child interactions in which parent behaviour is adjusted from one child behaviour to the next on the basis of the parent's appraisals of why the child performed the behaviour in question (Dix & Grusec, 1985). In turn, a better understanding of parenting behaviours and those factors that may influence parenting responses will be helpful in understanding family factors which ultimately influence child outcome.

Research on parents' attributions has demonstrated that parents are more upset with child behaviours that are perceived as intentionally performed by the child and as caused by factors internal to and controllable by the child (Dix & Grusec, 1985). Also, when mothers attribute responsibility to their children for negative behaviour, mothers are more upset by the behaviour and more likely to endorse power-assertive methods of discipline (Dix, Ruble, & Zambarano, 1989). Research has also linked parents' attributions to observed parenting behaviour. MacKinnon, Lamb, Belsky, and Baum (1990), in a sample of mothers and

their 7 to 9 year-old sons, found that mothers' perceptions of their children's behaviour as negatively intended were associated with greater coerciveness in observed mother-child interactions. In a recent study, mothers' attributions for children's misbehaviours were experimentally manipulated (Slep & O'Leary, 1998). Prior to engaging in a video-taped mother-child interaction, mothers were read one of two attribution induction scripts. The scripts provided mothers with information designed to elicit attributions for child behaviour that were either high or low in child responsibility. Mothers who were exposed to the script suggesting that their children were responsible for misbehaviour were more overreactive during the mother-child interaction compared with mothers who were exposed to the script suggesting that their children were not responsible.

In summary, it appears that attributions are an important variable in understanding close relationships. Attributions formed by spouses and parents have been found to differ across couples/families reporting higher and lower levels of conflict and distress. Both theory and correlational research have linked parents' attributions for child behaviour with parenting responses, and recent experimental research has supported the notion that parents' attributions may have a causal influence on parenting responses. Given the association between parents' attributions for child behaviour and parenting responses,

and the central role of parenting and the parent-child relationship in child development and outcome, parents' attributions for child behaviour appear to be a particularly important area of investigation in the developmental literature.

#### Parent and Child Characteristics Associated With Attributions

Researchers have linked parents' attributions for child behaviour to several parent and child characteristics. First reviewing parent characteristics, it has been found that abusive mothers provide more negative attributions to explain their children's misbehaviour compared with nonabusive mothers. For example, abusive mothers attribute their children's failures to internal, stable causes, and their children's successes to external, transient causes (Larrance & Twentymen, 1983). Researchers have also found that abusive mothers, in comparison with nonabusive mothers, are more likely to attribute less control to themselves and more control to the child in negative adult-child interactions. In turn, these child-responsible attributions have been associated with more abusive behaviour and more coerciveness among mothers attending counseling sessions at a child abuse agency (Bugental, Blue, & Cruzcosa, 1989).

Another parent characteristic that has been associated with mothers' perceptions of child behaviour is maternal depression. In samples of families with difficult children, several studies have revealed an association between

maternal self-reports of depressive symptomatology and mother ratings of child behaviour problems, with mothers reporting higher levels of depressive symptoms also reporting higher levels of problem behaviour (Dumas, Gibson, & Albin, 1989; Webster-Stratton, 1988). Furthermore, it appears that both depression and child behaviour account for unique variance in mothers' ratings of child behaviour problems (Johnston, 1991). Geller and Johnston (1995) extended this research to examine whether maternal depression was associated with the attributions mothers formed regarding their children's negative experiences. They found that mothers who reported higher levels of depressed mood attributed their children's negative experiences to more internal, controllable causes in comparison with mothers reporting lower levels of depressed mood. Given the elevated prevalence of depression in samples of mothers of children with externalizing behaviour disorders compared with the general population (Bauman, Molina, & Pelham, 1996), the examination of the association between depression and mothers' attributions for child behaviour problems is especially important in this population of families.

Gender is another parent characteristic that has been examined in relation to parents' attributions, although the vast majority of studies focus on maternal attributions. The few studies which have included fathers report few, if any, gender differences (Johnston & Freeman, 1997; Johnston

& Patenaude, 1994). One study that did find an effect for gender examined parents' attributions regarding their own influence on their child's behaviour (Sobol, Ashbourne, Earn, & Cunningham, 1989). The study found that fathers made more internal attributions regarding parental influence in achieving child compliance compared with mothers. Because the bulk of the literature reports exclusively on maternal cognitions, calls have been made to more often include fathers in research on parents' attributions (Miller, 1995).

Moving on to child characteristics, child age has been associated with parents' attributions for child behaviour (Dix & Grusec, 1985). It is reasonable to predict that as children mature, they are viewed as increasingly in control of and responsible for the behaviour they exhibit. Although effects of child age are not consistently found across studies, several studies of parents' attributions for children's social behaviour have found that misbehaviours of older children are viewed by parents as more intentional and as caused by more dispositional factors than the misbehaviours of younger children (Dix & Grusec, 1985; Ix et al., 1989).

Several researchers have found that mothers of children with externalizing behaviour problems (e.g., aggression and conduct problems) make more negative attributions for child misbehaviour than mothers of nonproblem children (Baden & Howe, 1992; Bickett, Milich, & Brown, 1996; Dix & Lochman,

1990; Strassberg, 1995). For example, it has been found that mothers of children who exhibit externalizing behaviour problems perceive child misbehaviour as more intentional and react more negatively to these behaviours than mothers of nonproblem children. In contrast, mothers of nonproblem children attribute child misbehaviours to relatively external, uncontrollable, transient influences and attribute positive child behaviours to internal, controllable, stable factors (Strassberg, 1995). Similarly, findings reported by Bickett and colleagues (1996) suggest that mothers of aggressive boys tend to infer negative motives and attribute their children's negative behaviours to dispositional causes.

Examining the attributions formed by parents of difficult children is a particularly important area of investigation. Given research suggesting that the tendency to spontaneously engage in attributional activity is heightened in situations involving negative and unexpected outcomes (Wong & Weiner, 1981), it is reasonable to assume that problematic child behaviours are frequent targets for parents' social cognitive efforts. Also, it is important to understand parents' attributions for negative or problematic child behaviours given that parents' efforts to manage difficult child behaviour are more likely to be successful when parents formulate "accurate" judgments regarding the causes of their children's behaviour. For example, it is likely that a parent of a child with Tourette's Syndrome (a

disorder characterized by uncontrollable motor and verbal tics) who perceives the child's symptoms as performed intentionally and blames the child, would respond more harshly to the child's symptomatic behaviours compared with a parent who "more accurately" perceives the behaviours as relatively less controllable by the child and less internally performed. The harshness and overreactivity of the former parent's responses to the child's symptomatic behaviours may set in motion a coercive exchange of behaviour between parent and child, in which the child, frustrated by the parent's negative reactions, may act out intentionally, leading to further punitive or negative responding by the parent. On the other hand, it would be appropriate for the parent to discipline the same child if he or she displayed a behaviour (e.g., instrumental aggression) which was caused by factors relatively more controllable by the child and performed relatively more intentionally by the child compared with the child's behaviours reflective of Tourette's Syndrome. However, if the parent "erroneously" attributed the aggression to a cause external to and uncontrollable by the child, and did not attribute responsibility to the child for the behaviour, the parent may fail to respond with appropriate punishment, in effect excusing the child for the misbehaviour.

The next section of this paper introduces two disruptive child behaviour disorders, Attention Deficit Hyperactivity Disorder (ADHD) and Oppositional Defiant

Disorder (ODD), and describes the behaviours that characterize each disorder. Research that has examined parents' attributions for and reactions to child behaviours characteristic of the two disorders is reviewed, and the effect of co-occurring ADHD and ODD child behaviours on parents' attributions and reactions is considered. This is followed by a discussion of the distinction between the inattentive versus impulsive-hyperactive symptoms of ADHD.

#### Disruptive Child Behaviour Disorders: ADHD and ODD

The fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) published by the American Psychiatric Association (APA, 1994), lists ADHD as one of the disruptive behaviour disorders of childhood, along with ODD and Conduct Disorder. ADHD consists of developmentally-inappropriate levels of inattention, impulsivity and/or overactivity which have been present before the age of 7 years and persistent for at least 6 months, which do not occur exclusively within the course of a pervasive developmental disorder, schizophrenia, or other psychotic disorder, and which are not secondary or better explained by another disorder such as anxiety disorder or depression. The symptoms of ADHD outlined in the DSM-IV include failing to give close attention to details or making careless mistakes in schoolwork or other activities, having difficulty sustaining attention, fidgeting, and intruding on or interrupting the activities of others (see Appendix A for a complete list).



ADHD is more likely to be diagnosed in boys than in girls, and the prevalence of ADHD across both sexes is estimated to be 3 to 5% of the elementary-school-aged population (APA, 1994). ADHD is associated with a range of concurrent and long-term difficulties (Barkley, 1990; Weiss & Hechtman, 1993). Although the cause of this disorder is not known, it is generally viewed as a neurologically-based condition (Anastopoulos & Barkley, 1989; Tannock, 1998). Consistent with this view, the most common (and most widely researched) approach to treating children with ADHD is the prescription of psychostimulant medication (Abikoff & Klein, 1992). Psychosocial interventions, which may target primarily ODD behaviours, are recommended as alternatives or adjuncts to medication (Hinshaw & Erhardt, 1993).

A handful of studies have compared attributions made by parents of nonproblem children with attributions made by parents of children with ADHD. With regard to parent-centered attributions, Sobol et al. (1989) found that parents of children with ADHD viewed their own influence on their children's behaviour as relatively unstable and uncontrollable in comparison with parents of nonproblem children. Focusing on child-centered attributions, a recent study conducted in our lab found that parents of children with this disorder attributed child behaviour problems characteristic of ADHD and ODD to causes that were more internal to the child, more stable, and less controllable by the child than parents of nonproblem children (Johnston &

Freeman, 1997). That is, parents of children with ADHD appear to view their children's problematic behaviours as reflecting enduring symptoms of an underlying disorder.

An important finding in research on childhood disruptive behaviours has been the distinction between behaviours central to the diagnosis of ADHD and behaviours central to a second disruptive child behaviour disorder, ODD. The DSM-IV describes the essential feature of ODD as a persistent pattern of negative, disobedient, and defiant behaviours directed toward authority figures which is developmentally-inappropriate or excessive. The symptoms of ODD outlined in the DSM-IV include often losing temper, arguing with adults, and actively defying or refusing to comply with adults' rules and requests (see Appendix B for a complete list). Estimates of the prevalence of ODD range from 2% to 16% across a variety of samples and assessment methods (APA, 1994). The onset of ODD typically occurs before the age of 8 years, and a significant number of children with ODD go on to later meet criteria for Conduct Disorder (APA, 1994). Behavioural intervention (particularly parent management training) is typically recommended for treating children with ODD and is the focus of most systematic evaluations of treatment for this disorder (Abikoff & Klein, 1992).

Although there has been considerable debate in the literature as to whether ODD and Conduct Disorder represent two discrete disorders, a growing body of research suggests

that ODD is appropriately conceptualized as a precursor to or mild form of Conduct Disorder (Rey et al., 1988; Schachar & Wachsmuth, 1990; Werry, Reeves, & Elkind, 1987). Further, reviewers have reported that 84-96% of clinic-referred children who meet diagnostic criteria for Conduct Disorder concurrently meet diagnostic criteria for ODD (Hinshaw, Lahey, & Hart, 1993). Given this overlap, the DSM-IV stipulates that children who meet criteria for the more serious Conduct Disorder should not receive a redundant, concurrent diagnosis of ODD.

Factor analytic studies provide empirical support for the distinction between ADHD and ODD. For example, Pelham, Gnagy, Greenslade and Milich (1992) conducted a factor analysis of teachers' ratings of diagnostic criteria for disruptive behaviour disorders outlined in the revised, third edition of the DSM (DSM-III-R: APA, 1987). The analysis revealed three factors: one reflecting symptoms of ODD and several Conduct Disorder symptoms, and two factors comprised of ADHD symptoms<sup>1</sup>. Bauermeister (1992) also conducted a factor analysis on teachers' ratings of DSM-III-R symptoms of ADHD and ODD in a sample of Puerto Rican children. The analysis of ratings for preschool-aged children (4 and 5 year olds) revealed two factors: one comprised of ADHD symptoms and the other comprised of ODD symptoms. Analyses of ratings for elementary-school-aged children (6 to 13 year olds) revealed three factors: one

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<sup>1</sup> The two factors on which the symptoms of ADHD load are described later in this paper.

comprised of ODD symptoms, and two reflecting symptoms of ADHD.

The distinction between symptoms of ADHD and ODD appears to be an important one when considering the interpersonal functioning of children with disruptive behaviour disorders. Cross-sectional and longitudinal studies suggest that children who exhibit behaviours symptomatic of both ADHD and ODD, compared with children exhibiting only ADHD symptoms, have higher rates of parent-child conflict and are perceived more negatively by their peers (Johnston & Pelham, 1986; Tallmadge, Paternite, & Gordon, 1989). Behaviours reflecting ADHD versus ODD are also believed to be associated with different etiological antecedents and different prognostic consequences (Loney & Milich, 1982). With a few exceptions, research suggests that ADHD and ODD differ in their associations with environmental influences. Studies comparing the families of ADHD children with and without concurrent ODD or Conduct Disorder diagnoses generally suggest that family adversity and parent psychopathology are more prevalent among families of children with comorbid diagnoses compared with children with ADHD without comorbid ODD or conduct disorder (Anastopoulos, Guevremont, Shelton, & DuPaul, 1992; Biederman, Munir, & Knee, 1987; Lahey et al., 1988; Schachar & Wachsuth, 1990). Maternal rejection and poor parental supervision also have shown a stronger association with conduct problems than with ADHD symptomatology (Loeber,

Brinthaup, & Green, 1990). Further, Anastopoulos and colleagues (1993) examined predictors of parental stress in a sample of parents of children with ADHD and found that while the severity of the child's ADHD symptoms was a significant predictor of parental stress, comorbid oppositional defiant behaviour was an especially potent predictor of parental stress.

With regard to etiology, recent models of ADHD focus predominantly on neurobiological factors (Barkley, 1996; Stevenson, 1992) whereas current models of ODD and Conduct Disorder place a much stronger emphasis on the role of family and social influences in the development of these disorders. With regard to ODD and Conduct Disorder, psychosocial influences are often viewed as critical factors which interact with the child's innate/neurobiological characteristics and lead to the development of ODD child behaviour (Moffitt, 1993; Patterson, 1986). Barkley (1996) notes that the bulk of the literature examining potential etiologic factors associated with ADHD supports factors which affect brain development and functioning, whereas little evidence points toward a purely psychosocial etiology of ADHD. Barkley (1996) also notes that, for the majority of studies which relate psychosocial factors (e.g., parent psychopathology, parenting practices, parenting stress) to ADHD, subgroup analyses and subsequent studies suggest that these psychosocial factors are typically related to comorbid ODD or child aggression, or appear to have developed in

response to the child having ADHD rather than causing the child to have the disorder.

Comorbidity among the disruptive behaviour disorders is a common occurrence. In clinic-referred samples of children with ADHD, estimates of comorbidity with ODD range from 20% (Barkley, 1990) to as high as 65% (Biederman et al., 1996; Biederman et al., 1987). For example, a recent report by Biederman et al. (1996) shows that, in a sample of 140 psychiatrically and pediatrically referred children with ADHD ranging in age from 6 to 17 years, 64% of the children had comorbid ODD or Conduct Disorder. All but one of the children classified as Conduct Disorder had a prior diagnosis of ODD that preceded the onset of Conduct Disorder by several years. Others report that more than half of children with ADHD (estimates of up to 70%) exhibit problematic ODD behaviours, although these children may not meet diagnostic criteria for ODD (Loney & Milich, 1982). Further, several studies of outcome for children with disruptive behaviour disorders report poorer social outcomes for children who exhibit both ADHD and problems characteristic of ODD or Conduct Disorder, in comparison with children who exhibit only ADHD or only ODD or Conduct Disorder (Barkley, Fischer, Edelbrock, & Smallish, 1990; MacDonald & Achenbach, 1996; Moffitt, 1990).

Given that children with ADHD show greater levels of inattention and impulsivity than typical of most children, and that many children with ADHD also exhibit significant

levels of behaviours characteristic of ODD, these children represent particularly challenging targets for their parents' social-cognitive efforts. It is reasonable to assume that parents of children with ADHD must frequently make decisions regarding the nature of the behaviours exhibited by their children and how to respond to those behaviours. Parents of children with ADHD may be called upon to frequently try to discriminate among behaviours that may be, to varying degrees, controllable by the child or performed unintentionally. It is reasonable to speculate that different interpretations of problematic child behaviours such as the core symptoms of ADHD versus frequently associated ODD behaviours are associated with different responses to these behaviours and with parents' beliefs about what types of interventions are most appropriate for the different behaviours.

#### Attributions for ADHD and ODD Behaviours

A small number of studies have examined adults' interpretations of child behaviours reflective of ADHD and ODD. Johnston, Patenaude and Inman (1992), in a sample of 66 undergraduate students, examined responses to brief, written descriptions of ADHD and ODD child behaviours. Students did not differentiate between ADHD and ODD child behaviours in their ratings of causal locus or stability (i.e., students saw both types of behaviour as caused by equally internal and stable factors), but did rate ODD behaviours as more controllable by the child than ADHD

behaviours. Students also rated their anticipated affective and behavioural reactions to the ODD behaviours as more negative than their reactions to descriptions of ADHD child behaviours. In a second sample of 120 undergraduate students, Johnston et al. compared students' causal attributions for and reactions to both ADHD and ODD child behaviours using more elaborate written scenarios which described four ADHD or four ODD child behaviours occurring over the course of a day in interactions with the child's parent. The last behaviour in each scenario was designated as the target behaviour for attribution and reaction ratings.<sup>2</sup> It was again found that students did not distinguish ADHD and ODD child behaviours along the causal attributional dimensions of locus and stability, but did rate ODD child behaviours as more controllable by the child than ADHD behaviours and rated their reactions to ODD behaviours as more negative than their reactions to ADHD behaviours.

Moving on to parents' attributions, Johnston and Patenaude (1994) compared attributions for and reactions to ADHD and ODD child behaviours in a sample of 43 parents of children with ADHD. Brief written descriptions of single child behaviours were used as stimuli for attribution and reaction ratings. Replicating findings from the studies

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<sup>2</sup> The Johnston et al. (1992) study also compared attributions for ADHD behaviours preceded by other ADHD behaviours with ADHD behaviours preceded by ODD behaviours and ODD behaviours preceded by other ODD behaviours with ODD behaviours preceded by ADHD behaviours. These comparisons are presented later in this paper.



with undergraduates, ODD behaviours were rated by parents of children with ADHD as more controllable by the child and elicited more negative reactions from the parents.

Freeman, Johnston and Barth (1997) compared parents' attributions for and responses to ADHD, ODD, and prosocial child behaviours. Forty parents of children with ADHD responded to written descriptions of child behaviours and 27 parents responded to behaviours they recalled being exhibited by their own child. On the written analogue measure, parents attributed less responsibility to themselves for ADHD child behaviour compared with ODD and prosocial behaviours, and showed a trend toward rating ADHD behaviours as least controllable by the child and ODD behaviours as most controllable. On the recalled-behaviour measure, parents rated both ADHD and ODD behaviours as less controllable than prosocial child behaviours. On both measures, parents reported more negative reactions to ADHD and ODD behaviours compared with prosocial child behaviours.<sup>3</sup>

In addition to written analogue behaviours and recalled behaviours, Johnston and Freeman (1997) used videotaped behaviours exhibited by the respondents' children to elicit parents' attributions for and responses to ADHD, ODD, and prosocial child behaviours. Parents of children with ADHD did not differentiate among the three types of

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<sup>3</sup> The Freeman et al. (1997) study also used the written analogue measure to examine the influence of preceding ADHD or ODD behaviours on attributions for ADHD, ODD and prosocial child behaviours. The comparisons involving co-occurring ADHD and ODD behaviours are discussed later in this paper.

behaviour in their ratings of locus or stability, but they did rate ADHD behaviours as less controllable than ODD behaviours, and both ADHD and ODD behaviours as less controllable than prosocial behaviours. On the other hand, parents of nonproblem children rated the three types of behaviour as equally internal in locus and equally controllable by the child, but rated the causes of prosocial behaviours as more stable. On the written analogue measure, both parents of ADHD and nonproblem children reported most negative affective and behavioural reactions to ODD behaviours and least negative reactions to prosocial behaviours.

Finally, Lovejoy (1996) examined attributions for ADHD and ODD child behaviours in a sample of experienced teachers and education practicum students. In this study, child behaviours were presented in written vignettes, each describing an 8-year old boy in a classroom situation exhibiting behaviours characteristic of either ADHD or ODD. Children described as exhibiting ADHD behaviour were perceived by both students and experienced teachers to have less control over and to be less responsible for their behaviour in comparison with children described as exhibiting ODD behaviours. Further, respondents reported more negative affect and rated punishment as a more appropriate response to children described as exhibiting ODD behaviour in comparison with children described as exhibiting ADHD behaviour. These findings, and the

previously described findings regarding attributions formed by students and parents, are generally consistent with etiologic models of ADHD and ODD which view the symptoms of ADHD as relatively biologically-determined, and the symptoms of ODD as relatively environmentally determined.

#### Co-occurrence of ADHD and ODD Child Behaviours

Given the high rate of comorbidity of ADHD and ODD and the fact that more than half of children with ADHD show at least some problems with ODD behaviours, it is likely that most parents of children with ADHD will see their children exhibit both types of behaviour. Therefore, it is important not only to compare attributions for behaviours reflecting ADHD versus ODD, but to also examine whether the presence of one type of behaviour influences attributions formed regarding the other type of behaviour. For example, are parents' perceptions of ADHD behaviour different when the target ADHD behaviour is exhibited in the context ODD child behaviours versus the context of other ADHD behaviours?

Studies examining teachers' ratings of child behaviour suggest that there is a unidirectional influence or bias operating in adult perceptions of child behaviour, in which the presence of ODD behaviour influences perceptions of ADHD behaviour, but not the reverse (Abikoff, Courtney, Pelham, & Koplewicz, 1993; Schachar, Sandberg, & Rutter, 1986; Stevens, Quittner, & Abikoff, 1998). For example, Abikoff and colleagues (1993) showed teachers videotapes of a child exhibiting behaviours characteristic of a nonproblem child

and a child exhibiting behaviours characteristic of either ADHD or ODD. After viewing each videotape, teachers rated the child's behaviour on a variety of descriptors of ADHD and ODD (including verbatim descriptors of the symptoms comprising DSM-III-R diagnostic criteria for ADHD and ODD). Findings revealed that teachers rated ADHD behaviour accurately for the child exhibiting ADHD behaviours, but made inflated ratings of ADHD behaviour for the child exhibiting ODD behaviours. On the other hand, teachers rated ODD behaviour accurately regardless of the presence of ADHD child behaviour.

Schachar et al.(1986) examined teacher ratings of observed child behaviour in classroom settings and found that children who exhibited defiance toward their teacher were more likely to be rated as showing ADHD behaviours, independent of the amount of ADHD behaviour actually exhibited. Further evidence for the influence of ODD child behaviour on perceptions of ADHD behaviour is the finding that teachers were more likely to record ADHD behaviours on days they also recorded ODD behaviours, even though the conditional-probability of ODD behaviours was unrelated to the reported occurrence of ADHD behaviours (Prinz, Connor, & Wilson, 1981).

Abikoff and colleagues (1993) argue that if this bias in teacher ratings was the result of teachers holding an implicit model in which children exhibiting one type of problem behaviour (either ADHD or ODD) are assumed to also

exhibit other problems, the bias in teacher ratings should be bi-directional. Given that the presence of ODD behaviour appears to inflate ratings of ADHD behaviour, but not the reverse, it appears that the ODD child behaviours have a unique capacity to activate a negative halo which results in elevated ratings of ADHD child behaviour.

Given the unidirectional nature of this halo effect in teacher ratings of child behaviour, it is interesting to speculate whether a similar unidirectional halo effect occurs when adults interpret or form causal explanations regarding why children exhibit specific ADHD and ODD child behaviours. Past research suggests that ODD child behaviours are perceived as more controllable by the child than ADHD behaviours (Johnston & Freeman, 1997; Johnston & Patenaude, 1994; Johnston et al., 1992). In turn, if adults' causal attributions regarding these ADHD behaviours are subject to the above-described negative halo effect, ADHD behaviours co-occurring with ODD behaviours should be perceived as more controllable and intentional than ADHD behaviours occurring in the context of other ADHD behaviours. On the other hand, ODD behaviours would be perceived similarly, regardless of whether they occur in the context of ADHD or ODD behaviour. This prediction is also consistent with the argument that ODD behaviours, which are by definition negative and often directed toward adults and other authority figures, inherently represent more salient and personally relevant stimuli than ADHD behaviours.

Research in social cognition (e.g., Taylor & Fiske, 1978) supports the notion that the greater salience of ODD behaviours resulting in more influence of ODD behaviours on parent interpretations of less salient ADHD behaviour than visa versa.

The impact of ODD behaviours on attributions for ADHD behaviours was examined in two of the studies previously discussed. However, the findings from the two studies are contradictory in terms of both the direction of bias and whether halo effects are uni- or bi-directional. Johnston et al. (1992), in addition to scenarios comprised of all ADHD or all ODD child behaviours, presented scenarios consisting of three ADHD behaviours followed by an ODD target behaviour and three ODD behaviours followed by an ADHD target behaviour to their sample of 120 undergraduate students. Comparing attributions for and reactions to ADHD behaviours that were preceded by other ADHD behaviours with ADHD behaviours that were preceded by ODD child behaviours, Johnston and her colleagues found support for their prediction that ADHD behaviours presented in the context of ODD behaviours would be perceived as more controllable by the child than ADHD behaviours presented in the context of other ADHD behaviours. In contrast to the studies of halo effects in teacher ratings of AHD and ODD behaviours, however, it was also found that ADHD behaviour influenced perceptions of ODD behaviour. Specifically, ODD behaviours presented in the context of ADHD behaviours were perceived

as less controllable by the child and elicited less negative reactions than ODD behaviours preceded by other ODD behaviours. Thus, in this study, there appeared to be a bi-directional influence in which interpretations of both ADHD and ODD behaviours were influenced by the behavioural context in which the behaviour occurred. It could be argued that for this student sample, both ADHD and ODD child behaviour problems were reasonably salient, and that bi-directional halo effects on attributions emerged as a function of which behaviours occurred more frequently and were perceived as primary (Johnston et al., 1992). Such an interpretation is consistent with research in social cognition examining primacy effects on impression formation (Asch, 1946).

The effect of preceding ADHD or ODD behaviours on attributions was also investigated by Freeman et al., (1997) in a sample of parents of children with ADHD. Written scenarios described two ADHD or two ODD child behaviours (context) followed by a third ADHD, ODD or prosocial target behaviour which served as the stimulus for parents' attribution and reaction ratings. Consistent with the unidirectional halo effect in studies of teachers' ratings of child behaviour, the presence of ODD child behaviour influenced parents' interpretations of ADHD behaviours, whereas the presence of ADHD behaviour did not influence parents' interpretations of ODD behaviours. However, the direction of influence of preceding ODD behaviours on

attributions for ADHD behaviours was opposite to prediction. ADHD behaviours were perceived as less controllable by the child when they were preceded by ODD behaviours compared with the same ADHD behaviours presented in the context of other ADHD behaviours. The authors speculated that this unexpected finding could possibly be interpreted as parents' believing that the emotional arousal that often accompanies ODD child behaviours may diminish the child's capacity for subsequent self-control.

The inconsistent findings regarding the effects of behavioural context on attributions for child behaviour may reflect methodological differences across the two studies. For example, as already noted, the Freeman et al. (1997) study presented parents with ADHD, ODD, and prosocial child behaviours as targets for attributions whereas Johnston et al. (1992) presented only ADHD and ODD behaviours. It is possible that the inclusion of prosocial behavioural stimuli may have provided parents with an anchor against which to compare ADHD and ODD child behaviours, minimizing distinctions parents may have otherwise made between the two behaviours, and perhaps influencing the impact of co-occurring ADHD and ODD behaviours on attributions.

It is also possible that methodological limitations of the previous studies contributed to the inconsistent findings. In both studies, respondents were presented with only two examples of each type of stimulus scenario (e.g., an ADHD behaviour occurring in the context of ODD



behaviours). Although ratings were aggregated across the two scenarios, this may still represent a relatively unreliable method of assessing attributions and reactions. Examining correlations between respondents' ratings across the two examples of each type of scenario depicting ADHD and/or ODD child behaviours in the Freeman et al. (1997) study, 19 out of 20 correlations were significant ( $ps < .01$ ). However, these correlations were moderate, ranging from .35 to .71 (median  $r = .53$ ). Similarly, attribution and responses ratings were aggregated across only two scenarios of each type in the Johnston and Freeman (1997) study, with correlation coefficients ranging from .10 to .82 (median  $r = .49$ ). It may be that presenting respondents with three examples of each scenario type in an effort to increase the reliability of attribution and response ratings will produce more consistent findings.

Finally, both of the previous studies of context effects employed ADHD behavioural stimuli which included a few inattentive, but predominantly impulsive and hyperactive child behaviours. As discussed in the next section of this paper, the inattentive versus the impulsive and hyperactive symptoms of ADHD appear to be somewhat distinct dimensions. Future work which independently examines the impact of ODD behaviours on interpretations of these two types of ADHD behaviour may be useful in clarifying the influence of behavioural co-occurrence on parents' attributions for and reactions to behaviours reflecting symptoms of ADHD and ODD.

In summary, despite the frequency with which both ADHD and ODD symptoms are exhibited by the same child, little research has examined the impact of co-occurring ADHD and ODD behaviours on parents' attributions. Given that the co-occurrence of these two common behaviours may hinder parents' ability to differentiate between ADHD and ODD behaviours in both their attributions and reactions, and in light of the contradictory findings to date, it is important to clarify the impact of behavioural co-occurrence on parents' attributions. More research is needed to determine whether, similar to the negative halo effect found for teachers' ratings of ADHD child behaviour in the context of ODD child behaviour, the presence of ODD child behaviour alters parents' interpretations of ADHD behaviours, whereas interpretations of ODD behaviours remain similar, regardless of whether or not they are presented in the context of ADHD behaviour.

#### Distinguishing Inattention from Impulsivity

An important development in the study of ADHD is the distinction between inattention and impulsivity-hyperactivity. The third edition of the DSM (APA, 1980) listed two subtypes of Attention Deficit Disorder, -with hyperactivity and -without hyperactivity. However, citing insufficient empirical support for a two dimensional conceptualization of Attention Deficit Disorder, the DSM-III-R (APA, 1987) presented ADHD as a unitary disorder, with inattentive, impulsive and hyperactive symptoms each

reflecting a common underlying dimension (Barkley, 1990; Frick & Lahey, 1991; Lahey & Carlson, 1991). According to the DSM-III-R, to receive a diagnosis of ADHD, the child was to exhibit 8 symptoms from a list of 14 inattentive, impulsive and overactive behaviours. Several studies conducted after the publication of the DSM-III-R, however, have provided support for a reversion to a two-dimensional model of ADHD.

Several factor analyses conducted on teachers' ratings of DSM-III and DSM-III-R diagnostic criteria for ADHD have revealed that ADHD symptoms reflecting inattention and those reflecting impulsivity and hyperactivity aggregate in two separate dimensions (Bauermeister, Alegria, Bird, Rubio-Stipec, & Canino, 1992; Healy et al., 1993; Lahey et al., 1988). Similarly, factor analytic studies of teachers' ratings of child behaviour on items reflecting symptoms of ADHD, ODD and Conduct Disorder reveal three factors, one factor containing items reflecting ODD and Conduct Disorder symptoms, a second factor on which the inattentive symptoms of ADHD load, and a third factor containing the impulsive and hyperactive symptoms of ADHD (Bauermeister, 1992; Pelham et al., 1992). Finally, a study reporting factor analyses of parents' and teachers' ratings of child behaviour on items directly adapted from the DSM-III-R list of ADHD symptoms revealed two factors across both parents' and teachers' ratings (DuPaul, 1991). One factor was composed of inattention and motor restlessness items while the other

was composed of items reflecting symptoms of impulsivity and motor restlessness. In this study, two items reflecting hyperactivity ("often fidgets or squirms" and "difficulty remaining seated"), loaded significantly on both factors.

Research has suggested that the inattentive versus impulsive-hyperactive dimensions of ADHD have different developmental courses and are associated with different concurrent difficulties. For example, Hart, Lahey, Loeber, Applegate, and Frick (1995), in a 4-year longitudinal investigation of more than one hundred 7- to 12-year-old ADHD boys, found that while impulsive-hyperactive symptoms decreased with age, inattentive symptoms remained relatively stable. Another study reported that ADHD children presenting with both inattention and impulsivity-hyperactivity are more likely to have a second disruptive behaviour disorder diagnosis (i.e., ODD or Conduct Disorder) than ADHD children with only inattention symptoms. On the other hand, children with only inattention symptoms of ADHD were more likely than their inattentive and impulsive-hyperactive counterparts to have a comorbid math learning disability (Morgan, Hynd, Riccio, & Hall, 1996).

The DSM-IV (APA, 1994) reflects the recent factor analytic research by dividing the symptoms of ADHD into two lists (inattention and impulsivity-hyperactivity) and by outlining three different subtypes of ADHD. Children presenting with at least six of nine inattention symptoms but five or fewer impulsive-hyperactive symptoms meet

diagnostic criteria for ADHD-Inattentive Type. Children presenting with at least six of nine impulsive-hyperactive symptoms, but fewer than five inattention symptoms, meet diagnostic criteria for ADHD-Hyperactive/Impulsive Type. Finally, children who present with six or more symptoms from each symptom cluster meet diagnostic criteria for ADHD-Combined Type. Two recent factor analytic studies examining parents' ratings of child behaviour reflecting DSM-IV diagnostic criteria for ADHD provide further support for a two-factor conceptualization ADHD (DuPaul et al., 1998; Pillow, Pelham, Hoza, Molina, & Stultz, 1998). However, Pillow et al. (1998) found support for a two-factor model of ADHD only when both ADHD and ODD symptoms were included in the analysis. When only ADHD symptoms were examined, the inattentive, impulsive and hyperactive symptoms loaded on separate dimensions.

Earlier studies reported that children meeting DSM-III (APA, 1980) Attention Deficit Disorders With Hyperactivity (ADD/H) differ in several emotional and behavioural characteristics from children meeting criteria for Attention Deficit Disorder Without Hyperactivity (ADD/WO). Children with ADD/WO appear comparable to children classified by the DSM-IV as having ADHD-Inattentive Type and have been found to be more anxious (Lahey, Schaughency, Strauss, & Frame, 1984; Lahey, Schaughency, Hynd, Carlson, & Neives, 1987), more shy or socially withdrawn (Edelbrock, Costello, & Kessler, 1984; Lahey et al., 1984), and to have a higher

comorbidity for learning disabilities (Edelbrock et al., 1984) compared with children with ADD/H. On the other hand, children with ADD/H appear comparable to children classified by the DSM-IV as having ADHD-Combined Type and have been found to display more conduct problems (Barkley, DuPaul, & McMurray, 1990; Cantwell & Baker, 1992; Edelbrock et al., 1984; Lahey et al., 1984, 1987), to be more unpopular with their peers (Edelbrock et al., 1984; Lahey et al., 1984), and to be less socially competent (Barkley et al., 1990; Cantwell & Baker, 1992).

A recent examination of prevalence rates for ADHD based on teacher ratings of DSM-IV criteria for 8,258 children in kindergarten through fifth grade indicated prevalence rates of 5.4% for ADHD-Inattentive Type; 2.4% for ADHD-Hyperactive/Impulsive Type; and 3.6% for ADHD-Combined Type (Wolraich, Hannah, Pinnock, Baumgaertel, & Brown, 1996). Among the children who met DSM-IV criteria for ADHD-Inattentive Type, 11.2% also met criteria for a diagnosis of ODD; among those meeting criteria for ADHD-Hyperactive/Impulsive Type, 36.2% also met criteria for ODD; and among children meeting criteria for ADHD-Combined Type, 54.7% also met criteria for ODD.

There is speculation that children who meet criteria for ADHD-Inattentive Type may have a distinct disorder with an attentional disturbance which is different from the attentional disturbance characteristic of ADHD-Combined Type (Barkley, Grodzinsky, & DuPaul, 1992; Goodyear & Hynd,

1992). Also, the defining symptoms of ADHD-Inattentive Type are primarily related to academic activities, and among children meeting criteria for this type, 75% were reported by teachers to have academic problems while only 40% were reported to exhibit behavioural problems (Wolraich et al., 1996). In contrast, among children meeting criteria for ADHD-Hyperactive/Impulsive Type, only 23% were reported by teachers to have academic problems, whereas 80% were reported to have behaviour problems. Although studies have compared ADHD children with and without impulsivity-hyperactivity, very little is known about this new category of children who show fewer attention problems and receive a diagnosis of ADHD-Hyperactive/Impulsive Type. However, it was noted in the DSM-IV field trial for ADHD that most of the children who were identified as ADHD-Hyperactive/Impulsive Type were preschoolers (Lahey et al., 1994), and it has been suggested that these preschool-aged children may go on to develop problems with inattention and meet criteria for ADHD-Combined Type in their school years. Research has found that children with ADHD-Combined Type are reported to have significant difficulties in both the academic and behavioural domains, to have the higher rates of comorbidity with other disruptive behaviour disorders, and have the poorest prognosis in comparison with children with ADHD-Inattentive Type or -Hyperactive/Impulsive Type (Wolraich et al., 1996).

To date, no studies have been conducted to compare parent perceptions of inattention versus impulsivity-hyperactivity. Given the previously described research suggesting that impulsivity-hyperactivity, but not inattention, is associated with concurrent oppositional behaviour problems among children with ADHD, it may be that parents make less of a distinction between impulsive-hyperactive child behaviours and ODD behaviours compared with the distinction made between inattentive child behaviours and ODD behaviours. That is, impulsive-hyperactive child behaviours may be perceived as more similar to ODD behaviours (i.e., more controllable by the child and as more intentionally performed) than inattentive child behaviours. Also, parents may be more likely to blame children for impulsive-hyperactive behaviours and react more negatively to these behaviours, compared with inattentive child behaviours. Therefore, the current investigation compared parents' attributions across three types of child behaviour: inattentive behaviours, impulsive behaviours, and oppositional behaviours. Also, the current investigation targeted parents of children with ADHD-Combined Type to focus on parents who are most likely to be affected by interactions with their children involving each of these three types of problem behaviours.

As reported in the previous discussion of behavioural co-occurrence, attributions for ADHD symptoms may differ when these behaviours occur in the context of additional



ADHD behaviours versus in the context of ODD behaviours. However, previous research regarding context effects on attributions for child behaviour has yielded conflicting findings. Therefore, the current investigation compared attributions for both inattentive and impulsive behaviours presented in a context of similar behaviours with attributions for inattentive and impulsive behaviours presented in a context of ODD behaviours. Although a consistent unidirectional bias has not been demonstrated in parents' ratings of their attributions for child behaviour, it is argued that this may reflect methodological limitations of previous studies. Therefore, the prediction with regard to context effects on attributions was based on the more consistent finding of a unidirectional bias in teachers' ratings of ADHD and ODD child behaviours (Abikoff, et al., 1993; Schachar, et al. 1986; Stevens, et al., 1998). It was predicted that both inattentive and impulsive child behaviours would be perceived as more controllable, intentional and blameworthy and elicit more negative reactions when they were preceded by a context of ODD child behaviours, in comparison with when they were preceded by a context of other inattentive or impulsive behaviours, respectively. Consistent with the unidirectional nature of the bias found in teachers' ratings of ADHD and ODD child behaviours, this context effect was not expected for parents' perceptions of and reactions to ODD child behaviours.

### Purpose of the Current Investigation

There were two primary research questions examined in the current investigation. First, the study examined whether or not parents of school-aged children with ADHD make differential attributions for and report differential reactions to inattentive, impulsive, and ODD child behaviours. Second, the study examined the effects of behavioural context on parents' attributions for and reactions to child behaviour. Comparisons were made between attributions for and reactions to inattentive child behaviours preceded by either inattentive or ODD child behaviours; between attributions for and reactions to impulsive child behaviours preceded by either impulsive or ODD child behaviours; and among attributions for and reactions to ODD child behaviours presented in the contexts of inattentive, impulsive, and ODD child behaviours.

The secondary goals of this project were to examine the associations between child age and parent attributions and between maternal depression and mothers' attributions for child behaviour.

### Primary Hypotheses

(i) It was predicted that both mothers and fathers would differentiate among the three types of child behaviour in their attributions of controllability, intent, and blameworthiness and in their affective and behavioural reactions. Specifically, it was predicted that parents would perceive ODD behaviours as more controllable,

intentional, and blameworthy than impulsive behaviours which would be perceived as more controllable, intentional, and blameworthy compared with inattentive behaviours. It was also predicted that parents would report more negative affective and behavioural reactions to ODD child behaviours compared with impulsive behaviours, which in turn, would elicit more negative affective and behavioural reactions than inattentive child behaviours.

(ii) It was predicted that inattentive and impulsive child behaviours presented in the context of ODD behaviours would be perceived as more controllable, intentional, and blameworthy, and elicit more negative affective and behavioural reactions compared with inattentive and impulsive behaviours presented in the contexts of other inattentive behaviours and other impulsive behaviours, respectively. The same influence effects were not predicted for attributions for and reactions to ODD behaviours presented in the context of inattentive or impulsive child behaviours.

#### Secondary Hypotheses

(iii) It was predicted that higher levels of maternal depressed mood would be associated with more negative attributions for and reactions to child behaviour, collapsed across inattentive, impulsive and ODD behaviours. That is, higher scores on a measure of maternal depression were expected to be associated with attributions reflecting more internal, controllable and stable causes, greater

attributions of intentionality and blameworthiness, and more negative affective and behavioural reactions to child behaviour compared with lower scores on a measure of maternal depression.

(iv) It was predicted that child age would be correlated with parents' attributions for and reactions collapsed across inattentive, impulsive and ODD behaviours, with parents of older children with ADHD attributing child behaviours to more internal, controllable and stable causes, forming greater attributions of intent and blameworthiness, and reporting more negative affective and behavioural reactions to child behaviour compared with parents of younger children.

#### Study Overview

To test the hypotheses of this study, written stimulus materials were employed to elicit parents' attributions for and reactions to child behaviours. Parents responded to analogue scenarios describing inattentive, impulsive and ODD target behaviours that were preceded by a context of either inattentive, impulsive or ODD behaviour. After reading the scenario, parents were asked to respond to a series of ratings scales which assessed their attributions for the target child behaviour along the dimensions of locus, control, stability, intentionality, and blameworthiness, and their anticipated affective and behavioural reactions to the behaviour.

Although the generalizability of responses to written analogue stimuli to child behaviours occurring in actual parent-child interactions is not assured, previous research has found similar patterns of parent responses to written descriptions of child behaviour, parents' recollections of their own child's behaviours, and video clips of their own child's behaviour during video-taped parent-child interactions (Johnston & Freeman, 1997). Further, given this investigation's focus on the impact of behaviour type on parents' attributions, the use of analogue stimuli allowed for control over the multiple situational variables that may vary across parents and children. This control was necessary to isolate the effects of the manipulated variable.

Both mothers and fathers were recruited to participate in the proposed investigation. Given that ADHD-Combined Type is most frequently associated with concurrent ODD behaviour, the proposed investigation reports only on parents of children with ADHD-Combined Type. Because research suggests that boys and girls with ADHD-Combined Type present similar symptoms and secondary difficulties (Eiraldi et al., 1998), parents of both boys and girls with ADHD-Combined Type were included in the study. Finally, the investigation was limited to parents of elementary-school-aged children to allow comparability with the age group of children for whom families most frequently seek mental health services (Offord et al., 1987).

## Method

### Participants

Parents of 6 to 12 year-old children with ADHD were recruited for this study through information pamphlets distributed at meetings of support groups for parents of children with ADHD throughout Canada, a local conference attended by parents and professionals, and a pediatrician's office in Regina, Saskatchewan. Interested parents were asked to contact the experimenter via a 1-800 telephone number to receive further information about the study and complete an initial phone screening interview. In the initial phone screen interview, parents were asked for their child's date of birth and asked to provide information about the source of their children's ADHD diagnosis. Parents were also asked to provide information regarding the onset, duration, and pervasiveness of their children's ADHD symptoms.

Parents representing 68 families of children with ADHD called for information about the study and completed the initial phone screening interview. In the phone screening interview, callers from 5 families indicated that either their child was not in the targeted age range, or had not been formally diagnosed with ADHD by a health care professional. These families were thanked for their interest in the research, but not mailed out questionnaires. For the remaining 63 families, callers indicated that they had a

child who had been diagnosed with ADHD by a health care professional (i.e., psychiatrist, psychologist, pediatrician, or family physician) and indicated a willingness to participate in the study. All of these children were reported as showing symptoms of ADHD prior to age 7 years, in both home and school settings, and for a duration of at least 6 months, consistent with DSM-IV diagnostic criteria for ADHD.

In addition, ADHD diagnosis was confirmed for research purposes using two parent-completed measures of child behaviour. The first measure was the ADHD Rating Scale-IV (DuPaul et al., 1998), an 18-item rating scale designed to assess symptoms of ADHD. The 18 items correspond with the ADHD symptoms of inattention and impulsivity-hyperactivity listed in the DSM-IV. Parents rate the extent to which each item describes their child's home behaviour over the past 6 months on a 4-point scale ranging from 0 ("never or rarely") to 3 ("very often"). For the purposes of the current investigation, ratings above the mid-point of the scale (i.e., ratings of 2 "pretty often" or 3 "very often") were scored as indicative of symptom presence. Consistent with DSM-IV criteria, children were classified as having ADHD-Combined Type if at least six inattentive and six impulsive-hyperactive symptoms were endorsed by one or both of the child's parents.

Psychometric data are available for the ADHD Rating Scale-IV and the measure has adequate psychometric

properties for use in screening for and assessing ADHD (DuPaul et al., 1998). Cronbach's alpha coefficients for the scale as a whole, as well as for subscales made up of the inattention and the impulsivity-hyperactivity items, are all .90 or better, as are 4-week test-retest reliability coefficients for parent ratings. Using data from the sample in the current investigation, Cronbach's alpha coefficients were .80 for both the scale as a whole and for the subscale comprised of inattentive symptoms. The Cronbach's alpha coefficient for the subscale comprised of the impulsive-hyperactive symptoms of ADHD was .66. Data are also available which provide good support for the criterion-related validity of the measure (DuPaul et al., 1998).

The second measure completed by parents to confirm the child's ADHD diagnosis for the purpose of the current investigation was the Child Behavior Checklist (CBCL; Achenbach, 1991). The CBCL is a child behavior measure that provides scores for several specific syndromes (e.g., Attention Problems, Anxious/Depressed) and two broad band factors reflecting Internalizing and Externalizing child behaviour problems. The measure is widely used in research, provides sex- and age-appropriate norms, and possesses sound psychometric properties. One week test-retest reliability is reported as .88 for ratings of boys on the Attention Problems scale, .90 for the Internalizing scale, and .91 for the Externalizing scale. Inter-parent agreement is also good, with mother and father responses correlated at .79 for



the Attention Problems scale, .66 for Internalizing scale and .80 for the Externalizing scale. With regard to internal consistency, Cronbach's alphas are .84 for ratings of boys on the Attention Problems scale, and .89 and .93 for the Internalizing and Externalizing scales, respectively (Achenbach, 1991). Research suggests that the Attention Problems scale of the CBCL has good discriminating power and is a useful screening tool for ADHD in that it converges with diagnoses of ADHD based on structured interviews. Research has shown that a cutoff T score of 60 is clinically useful in discriminating between children with and without ADHD (Biederman et al., 1993; Chen, Faraone, Biederman, & Tsuang, 1994; Ostrander, Weinfurt, Yarnold, & August, 1998). Therefore, to be classified as having ADHD for the purposes of this study, children needed to meet DSM-IV diagnostic criteria for ADHD-Combined Type and be rated by at least one parent as having a T score of 60 or greater on the Attention Problems subscale on the CBCL.

Forty-two of the 47 children whose parents returned questionnaires were rated as showing at least 6 inattentive and 6 impulsive-hyperactive symptoms on the ADHD Rating Scale-IV and as having T scores at or above 60 on the Attention Problems subscale on the CBCL by at least one parent. Mean ratings by mothers and fathers of these 42 children on the two child behaviour measures are presented in Table 1. It is the data obtained from the 52 parents of these 42 children that were used in data analyses.

As rough indicators of the child's functional impairment, parents were also asked to rate the extent to which their child's ADHD symptoms constituted a problem for the child (on a 10 point scale ranging from "not at all" to "very much") and the extent to which they perceived their child to be in need of intervention because of his/her ADHD symptoms (on a 10-point scale ranging from "not at all in need of treatment" to "very much in need of treatment"). Mean ratings on these scales by mothers and fathers for the 42 children meeting criteria for ADHD according to the ADHD Rating Scale and the Attention Problems subscale of the Child Behavior Checklist are presented in Table 1.

Using the same 4-point scale employed to assess ADHD symptoms on the ADHD Rating Scale-IV, parents also rated their children according to DSM-IV criteria for ODD. Endorsements of symptoms above the mid-point of the scale were used to indicate symptom presence. Of the 42 children who met diagnostic criteria for ADHD on the ADHD Rating Scale-IV and the Attention Problems subscale of the CBCL, 37 were rated by at least one parent as also meeting criteria for ODD (i.e., at least 4 of the 8 symptoms of ODD were endorsed as shown "pretty often" or "very often"). The mean number of ODD symptoms endorsed by mothers and fathers is reported in Table 1.

The sample of 52 parents (39 mothers and 13 fathers) of children meeting research criteria for ADHD is comprised of 10 mother-father couples, 22 married mothers whose spouse

did not participate<sup>4</sup>, 1 married father whose spouse did not participate, 7 single or divorced mothers, and 2 single or divorced fathers.

Table 1.

Sample Descriptive Information: Child Behaviour Ratings

Variable	<u>M</u>	<u>SD</u>	<u>Range</u>
Modified ADHD Rating Scale-IV <sup>a</sup>			
Inattentive Symptoms			
Mother:	7.95	1.34	6-9
Father:	7.85	1.21	6-9
Hyperactive/Impulsive Symptoms			
Mother:	7.41	1.39	6-9
Father:	7.00	1.91	6-9
ODD Symptoms			
Mother:	5.74	1.97	0-8
Father:	4.77	2.59	0-8
Child Behavior Checklist <sup>b</sup>			
Attention Problems scale			
Mother:	74.31	8.15	60-97
Father:	69.92	9.96	51-84
Aggression scale			
Mother:	70.38	9.69	50-92
Father:	67.69	12.09	50-95
Externalizing scale			
Mother:	68.03	7.85	47-84
Father:	65.69	9.68	50-82
Internalizing scale			
Mother:	65.77	10.31	43-84
Father:	64.46	12.11	34-80

<sup>4</sup> Included in the 22 married mothers are one foster mother and two custodial grandmothers. The foster mother and two grandmothers indicated that they had been the primary care-takers of the children with ADHD from the time the child was one year of age or younger, and that they had lived with the children continuously for 10 years or longer.

Child Impairment Scales<sup>c</sup>

Problem			
Mother:	8.46	1.57	5-10
Father:	8.31	.95	7-10
Need Treatment			
Mother:	9.18	1.37	5-10
Father:	8.62	.96	7-10

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Note. n=37 mothers, n=13 fathers.

<sup>a</sup> Scores indicate the number of symptoms rated as "pretty often" or "very often" exhibited by the child.

<sup>b</sup> Scores are T scores based on age and gender norms.

<sup>c</sup> Scores on child impairment scales can range from 1 to 10, with higher scores reflecting perceptions of ADHD symptoms being a greater problem for the child and in greater need of treatment.

One parent from each family participating in this study provided information regarding family demographic characteristics, child treatment, parent psychological problems and treatment, and sources of information which have been helpful to them in learning about ADHD. Of the 42 children who were classified as ADHD-Combined Type using parent ratings on the ADHD Rating Scale-IV and CBCL, 83% were boys. Average child age was 124 months (SD = 22). Ninety-three percent of the children were being treated with medication for ADHD. Because this study was interested in child behaviors that would be characteristic of most parent-interactions, and given that many parent-child interactions occur at times when the child is least influenced by

medication (early in the morning before school and after school or later in the day when medication is wearing off), the parents of children who were taking medication were asked to complete measures used in the study while thinking of their child's behavior as it would be without medication. Parents of 74% of the children reported using behavioral intervention strategies in the home (e.g., time-out, charts, reward systems). Thirty-five of the 42 children were from families with more than one child, and of those children, 37% were reported by parents to have a sibling who was also diagnosed with ADHD by a health care professional.

Regarding parent characteristics, average age was 39 years for mothers ( $SD = 7$ ) and 40 years for fathers ( $SD = 4$ ). Using the Hollingshead Four Factor Index of Social Status (Hollingshead, 1975), average family socioeconomic status was calculated to be 41.7, corresponding to middle class. Sixty-three percent of parents had completed at least some post-secondary education, 31% had completed only high school, and 6% had at least a grade 9 education but failed to complete high school. Seven mothers and one father were reported to be experiencing and undergoing treatment for psychological problems (one parent receiving treatment for bulimia, one for Tourette's Syndrome, and the remaining five parents receiving treatment for depression). Also, four mothers and two fathers indicated that they had been diagnosed with ADHD by a psychologist or psychiatrist. Parents reported a number of sources of information by which

they have learned about ADHD, including the media (television programs, newspaper and magazine articles), reading books and watching informational videos, attending workshops and conferences, talking with health care professionals, talking with other parents of children with ADHD, and attending parent support groups.

### Measures

Attribution Questionnaire. Parents completed a questionnaire consisting of written scenarios depicting inattentive (INATT), impulsive (IMP) and ODD child behaviours followed by rating scales assessing parents' attributions for and reactions to the behaviours. The front page of the Attribution Questionnaire provided an explanation of the attribution dimensions and examples of their use. Parents were instructed to imagine that the scenarios described interactions between themselves and their ADHD child. Parents were also instructed to imagine that the interactions occurred while the child was not medicated (if applicable).

The specific INATT, IMP and ODD behaviours used to form scenarios on the Attribution Questionnaire consisted of brief behavioural exemplars of selected DSM-IV inattentive and impulsive symptoms of ADHD and symptoms of ODD. Behavioural exemplars were written to reflect the inattention symptoms of: difficulties sustaining attention in tasks or play activities, losing things necessary for tasks or activities, and being easily distracted. These

symptoms were selected based on their high loadings on the inattention factor in an analysis of teacher ratings of diagnostic criteria for disruptive child behaviour disorders (Pelham et al., 1992) and the degree to which clear behavioural exemplars of these symptoms could be written. Behavioural exemplars were written to reflect the three impulsivity symptoms that load on the hyperactivity-impulsivity factor: blurting out answers before questions have been completed, difficulties awaiting turn, and interrupting or intruding on others. As noted previously, although both hyperactive and impulsive symptoms have generally loaded together on a single dimension of ADHD symptoms, one study (DuPaul, 1991) found behaviours reflecting motor restlessness to load on both the inattentive and hyperactive-impulsive dimensions. Also, a more recent study examining DSM-IV symptoms of ADHD (Pillow et al., 1998) found some support for a three-factor model of ADHD with the inattentive, impulsive and hyperactive symptoms of ADHD loading on three separate dimensions when only parents' ratings of ADHD symptoms were examined. Given these findings and the current emphasis on the construct of impulsivity as opposed to hyperactivity in the current child clinical literature, only impulsive behaviours were examined in this study. Finally, behavioural exemplars were written to reflect three DSM-IV symptoms of ODD which have high factor loadings on the oppositional-defiant factor revealed

in the Pelham et al. (1992) study: loses temper, argues with adults, and actively defies or refuses adult requests or rules.

Eight behavioural exemplars were written for each of the nine different symptoms (three INATT, three IMP, three ODD). These 72 behaviour exemplars were pilot tested in a sample of 55 university students to select the behaviours that were perceived as most realistic, easy to imagine, gender neutral, and age-appropriate. Behaviour exemplars were also rated for their severity (assessed by asking how much of a problem was the behaviour) and impact on the parent (assessed by asking students the extent to which they would be inconvenienced, hassled, or bothered by the child behaviour).

Thirty-six behaviour exemplars (four exemplars representing each of the three INATT, three IMP, and three ODD symptoms) were selected based on the first set of pilot ratings. Student ratings averaged across these 12 INATT, 12 IMP and 12 ODD behaviour exemplars are presented in Table 2. Based on their mean ratings, all behaviours were perceived as realistic, easy to imagine, gender neutral and appropriate for an elementary-school-aged child. Behaviour exemplars were also selected to be similar across type of behaviour (INATT vs. IMP vs. ODD) in perceived severity and impact on the parent, and means indicated that all behaviours were viewed as having an impact on the parent and as being moderately problematic. Students also rated each



behavioural exemplar along the attribution dimensions of causal locus and control. Collapsing across the 36 behaviour exemplars, ratings of easy to imagine, child age, gender, problem severity, and inconvenience were not correlated with students' ratings of causal locus and control ( $r$ s ranged from  $-.24$  to  $.14$ , all  $p$ s  $> .05$ ). A negative correlation was found between ratings of realism and causal locus,  $r(55) = -.29$ ,  $p < .05$ , with less realistic behaviours attributed to more external, situational causes. However, given that ratings of realism were similar across types of behaviour and no predictions were made regarding attributions of causal locus, this association was not considered problematic. The mean pilot ratings are presented in Table 2.

Table 2.

First Pilot Study: Means and Standard Deviations for Rating Scale Dimensions by Type of Child Behaviour

Dimension	Child Behaviour		
	Inattentive	Impulsive	Oppositional
Realism	8.15 (1.18)	7.69 (1.23)	7.71 (1.33)
Easy to Imagine	8.31 (1.18)	7.91 (1.38)	7.98 (1.36)
Child Age	5.73 ( .77)	5.34 ( .83)	5.86 ( .81)
Child Gender	5.81 ( .65)	6.06 ( .78)	5.80 ( .73)

Problem	5.22 (1.23)	5.39 (1.23)	5.83 (1.34)
Inconvenience	5.79 (1.52)	5.70 (1.47)	5.99 (1.55)
Locus	4.19 (1.19)	4.17 (1.14)	4.53 (1.25)
Control	3.46 (1.13)	3.15 (1.32)	2.93 (1.08)

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Note. Scores can range from 1 to 10. Higher scores indicate greater realism, greater ease to imagine, more problematic, greater inconvenience/hassle, more external locus, and less control. Ratings falling at the mid-point of the child gender scale and child age scale indicate gender-neutrality and elementary-school-age, respectively.  $N = 55$  students.

The 36 behaviour exemplars selected from the first pilot test were again pilot tested in a second sample of 33 undergraduates. This was done to ensure that the stimulus behaviours across the three types of behaviour were perceived as similar in intensity (students rated "how mild versus intense is this child behaviour") and similar in the extent to which the behaviours were prototypical of either inattention, impulsivity or opposition-defiance (students were provided with written definitions of inattention, impulsivity, and opposition-defiance and asked "how typical would this behaviour be for an inattentive (or impulsive, or oppositional) child?"). Also, the rating of inconvenience in the first pilot testing was worded in such a way that inconvenience was combined with hassled and bothered. To

reduce this confounding of inconvenience with affective reactions, students participating in the second pilot testing rated the impact of the behaviour on the parent by responding to the question "To what extent would you be inconvenienced by the child's behaviour?". Finally, respondents in this second pilot study also rated each behaviour on the attributional dimensions of causal locus and control. Student ratings from the second pilot study, averaged across the 12 INATT, 12 IMP and 12 ODD behaviour exemplars, are presented in Table 3.

Table 3.

Second Pilot Study: Means and Standard Deviations for Rating Scale Dimensions by Type of Child Behaviour

Dimension	Child Behaviour		
	Inattentive	Impulsive	Oppositional
Prototypical	7.51 (1.20)	7.44 (1.17)	7.25 (1.09)
Strength	6.29 (1.40)	6.23 (1.48)	6.17 (1.47)
Inconvenience	6.41 (1.11)	5.94 (1.26)	5.65 (1.42)
Locus	4.30 (1.09)	4.34 (1.02)	4.62 (1.32)
Control	4.11 (1.23)	3.85 (1.45)	3.93 (1.43)

Note. Ratings range from 1 to 10. Higher ratings indicate greater prototypicality, greater intensity or strength, greater inconvenience, more external locus, and less control.  $N = 33$  students.

Mean ratings indicated that each behaviour type was perceived as prototypical, moderately strong or intense, and as having a moderate impact on the parent. Collapsing across the 36 behaviour exemplars, ratings of strength and inconvenience were not correlated with students' ratings of causal locus or control ( $r$ s ranged from  $-.23$  to  $.06$ , all  $p$ s  $> .05$ ). A negative correlation was found between ratings of prototypicality and causal locus ( $r(33) = -.37$ ,  $p < .05$ ), with less typical behaviours being attributed to more external, situational causes. However, given that ratings of prototypicality were similar across type of behaviour and no predictions were made regarding attributions of causal locus, this association was not considered problematic.

For the Attribution Questionnaire, each scenario presented a combination of four child behaviours reflecting a child's behaviour at home with the parent over a 1-day period. The first three behaviours in each scenario provided the behavioural context. For each type of behavioural context (INATT-INATT-INATT, IMP-IMP-IMP, and ODD-ODD-ODD), one exemplar of each of the three symptoms (e.g., difficulty sustaining attention, loses things, and easily distracted) of the specified behaviour type (e.g.,

inattention) was presented. The fourth behaviour in each scenario (either an INATT, IMP or ODD behaviour) was printed in bold and served as the target behaviour for which parents' attributions and reactions were elicited. The following is an example of an IMP-IMP-IMP-ODD scenario in which the ODD behaviour is the target behaviour for the respondent's attribution and reaction ratings, and the three preceding IMP child behaviours provide the behavioural context:

You are in the kitchen preparing breakfast. Because you are out of bread and eggs, you ask your child what kind of cereal he would like to eat. Before you finish asking the question, the child blurts out that he wants eggs for breakfast and then rushes off to do something else (*IMP - blurts out answer*)<sup>5</sup>. Later that day, you and your child are playing a word game together on the computer. You are taking turns filling in the letters which are missing on the screen. It is your turn to fill in a letter, but just as you reach down to the computer keyboard, your child reaches out and hits a key with his choice of letter (*IMP - difficulty waiting turn*). That evening, you are at the front door saying good-bye to a friend who was visiting. Meanwhile, your child walks up to you holding one of his toys. Even though you are still talking with your friend, your child interrupts and asks when you are going to buy new batteries for the toy (*IMP - interrupts*). **That night, when you go into your child's room to tell him that it is time for bed, the child asks if he can stay up and play for another hour. When you tell him no, the child has a temper outburst and throws his pajamas and bedding on the floor (ODD target behaviour - temper tantrum).**

Three examples each of seven different types of scenarios were created. Three scenarios types were

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<sup>5</sup> The information printed in brackets did not appear when the scenarios were presented in the Attribution Questionnaire.

consistent for context and target behaviour (INATT-INATT-INATT-INATT, IMP-IMP-IMP-IMP, ODD-ODD-ODD-ODD). Two scenario types consisted of ADHD symptom contexts followed by ODD target behaviours (INATT-INATT-INATT-ODD, IMP-IMP-IMP-ODD). Finally, two scenario types consisted of ODD contexts followed by ADHD symptoms (ODD-ODD-ODD-INATT, ODD-ODD-ODD-IMP). To ensure comparability of the behaviours being used to determine whether the presence of ODD behaviours influenced attributions for ADHD behaviours, and visa versa, the final target behaviours were identical for the INATT-INATT-INATT-INATT and ODD-ODD-ODD-INATT scenarios, the IMP-IMP-IMP-IMP and ODD-ODD-ODD-IMP scenarios, and the ODD-ODD-ODD-ODD, INATT-INATT-INATT-ODD and IMP-IMP-IMP-ODD scenarios. In other words, parents rated the same target behaviours following different contexts. In total, parents read 21 scenarios presented in random orders across parents. Appendix C provides an example of each of the seven scenario types.

After reading each scenario, parents were asked to respond on seven 10-point rating scales measuring their attributions for and reactions to the target behaviours. The first three rating scales assessed causal attributions on the dimensions of locus (anchors of "something about the child" to "something about other people/the situation"), controllability (anchors of "completely within the child's control" to "not at all within the child's control") and stability (anchors of "not at all likely to change" to "very

likely to change"). The fourth rating scale assessed the extent to which the child intended to perform the behaviour (anchors of "not at all intentional" to "completely intentionally") and the fifth scale assessed the extent to which the parent believed the child is blameworthy for the behaviour (anchors of "not at all to blame" to "very much to blame"). The sixth rating scale assessed the parent's affective response to the behaviour (anchors of "not at all upset" to "very upset") and the seventh rating scale measured the parent's anticipated behavioural response to the target behaviour by asking "To what extent would you express disapproval toward or reprimand the child for exhibiting this behaviour?" (anchors of "not at all" to "very much").

Maternal Depression. Mothers' depressive symptomatology was assessed using the Center for Epidemiologic Studies-Depressed Mood Scale (CES-D: Radloff, 1977). This measure was selected to assess maternal depressed mood, because unlike the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the CES-D was designed to assess depressive symptomatology within a community population. The CES-D is a 20-item scale that has a good empirical base and is easy to administer and score (Corcoran & Fischer, 1987). The instrument shows significant associations with other measures of depressed mood (Craig & Van Natta, 1976; Krech, 1990). The measure is also internally consistent, with split-half and Spearman-Brown reliability coefficients

ranging from .77 to .92, and reliable, with test-retest correlations ranging from .51 to .67 over a 2 to 8 weeks (Radloff, 1977). Using mothers' responses on the CES-D in the current sample, Cronbach's alpha for this scale was calculated to be .92. Scores on this measure can range from 0 to 60, with higher scores indicative of greater depressive symptomatology. Cutoff scores of 16 or greater are generally used to indicate depression, with the distribution of scores on this measure being symmetrical among psychiatric patient groups, but very skewed, with a larger proportion of low scores, in the general population (e.g., Radloff, 1977). In this sample, mothers' scores on the CES-D ranged from 0 to 43 ( $M = 11.62$ ,  $SD = 10.53$ ). Nineteen percent of mothers who completed this measure had scores that reached or exceeded 16. More recent research has suggested that a cutoff score of 40 is associated with an approximately 60% probability of receiving a diagnosis of depression via a standardized, structured interview (Santor & Coyne, 1997). In this sample, only one mother had a score above 40 on this measure.

### Procedures

Parents who contacted the experimenter and were eligible for the study based on the initial telephone screening were provided with a rationale and overview of the study. Parents were told that the study concerned parents' perceptions about the behaviour of children with ADHD and involved the completion of questionnaires that would be



mailed to their home and take 60 to 90 minutes to complete. In cases where there was more than one child with ADHD between the ages of 6 and 12 years in the family, parents were asked to complete the questionnaires with reference to the child who exhibited both the inattentive and impulsive-hyperactive symptoms of ADHD. In cases where both children appeared to exhibit symptoms of ADHD-Combined Type, parents were asked to complete questionnaires with regard to their oldest child with ADHD within the specified age range. During the telephone screening, the first name of the target child was recorded and subsequently written on the top of each questionnaire as a reminder to parents. If callers indicated that both the mother and father of the child were interested in participating in the study, both of the child's parents were sent questionnaires and instructed to complete their questionnaires independently and to seal the completed materials in separate return envelopes before discussing them with one another. Parents were also informed that they had the right to withdraw from the study at any time, and that the return of completed questionnaires would be indicative of consent for participation.

Following the initial telephone contact, participants were mailed a questionnaire package consisting of an explanatory cover letter (Appendix D); a demographic information form (Appendix E); a modified ADHD Rating Scale-IV (Appendix F); the Child Behavior Checklist (Achenbach, 1991); instructions for the attribution ratings (Appendix

G); an attribution questionnaire consisting of stimulus scenarios and attribution and reaction rating scales (rating scales presented in Appendix H); the Center for Epidemiologic Studies-Depressed Mood Scale; and a stamped, self-addressed return envelope. Parents were instructed to complete the questionnaires in the order they appeared in the questionnaire package so that diagnostic information was collected before parents were asked to think more carefully about their interpretations of and reactions to specific instances of child behaviour reflecting the symptoms of ADHD and ODD.<sup>6</sup>

## Results

### Preliminary Analyses

(i) For each of the seven ratings on the Attribution Questionnaire (locus, control, stability, intent, blame, affective response, and behavioural response), alphas were computed to examine the reliability of responses to the first, second and third examples of each scenario type (e.g., the three INATT-INATT-INATT-ODD scenarios). Alphas ranged from .49 to .83, with a median alpha of .67. Given this level of correspondence with only three items in each scale, ratings were averaged across the three examples of each scenario type. It is these averaged ratings which

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<sup>6</sup> The questionnaire package also included questionnaires not addressed in the current investigation (i.e., a measure of parents' beliefs regarding the etiology and treatment of ADHD and ODD). These questionnaires were completed by parents after they had completed the measures used for the current investigation.

served as multiple dependent variables in the primary analyses.

(ii) Next, the ratings for each of the five attribution and two response dimensions of the Attribution Questionnaire were aggregated across all 21 scenarios (three examples of each of the seven scenario types). Correlations among the aggregated attribution and response ratings were calculated to determine whether any of the rating dimensions should be combined or whether they could be considered as separate measures in subsequent analyses. A correlation of .80 or greater was employed as a criterion for aggregation of rating dimensions into a composite score. Among the attribution ratings, none of the correlations exceeded .80. Therefore, these attribution dimensions were considered relatively independent and considered individually in subsequent analyses. The correlation between affective response and behavioral response was .83 ( $p < .001$ ) and therefore, these two ratings were averaged into one score (response) in all further analyses. The intercorrelations among the five attribution and two response ratings are presented in Table 4.

Table 4.

Intercorrelations Among Attribution and Response Ratings  
(Ratings Averaged Across All Scenarios)

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	Loc.	Cont.	Stab.	Int.	Blam.	Aff.	Beh.
Loc.	---	.11	.51***	.28*	.12	-.04	-.10
Cont.		---	.32*	.74***	.56***	.25	.33*
Stab.			---	.31*	.50***	.21	.22
Int.				---	.49***	.17	.21
Blam.					---	.57***	.67***
Aff.						---	.83***
Beh.							---

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$p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Note. Higher scores indicate more external locus, more controllability, less stability, more intent, more blame, and more negative reaction.  $N = 52$  parents.

(iii) Finally, two repeated measures MANOVAs were conducted to determine whether parent or child gender warranted consideration as a between subjects factor in subsequent analyses or whether ratings from mothers versus fathers and ratings from parents of boys versus girls could be considered together. A repeated measures MANOVA employing the six rating dimensions (locus, control, stability, intent, blame and response) averaged across all scenarios as a within-subjects factor, and parent gender as a between-

subjects factor, revealed no significant effects for parent gender,  $F(1, 50) = .22$ ,  $p = .64$ . Because of a violation of the assumption of sphericity, the test for the interaction between parent gender and rating dimension was conducted using a Greenhouse-Geisser correction and revealed no significant parent gender by rating dimension interaction,  $F(3.46, 173.04) = .12$ ,  $p = .99$ . Similarly, a repeated measures MANOVA employing the rating dimensions as a within-subjects factor and child gender as a between-subjects factor revealed no significant effects for child gender,  $F(1, 50) = 1.39$ ,  $p = .24$ , nor for the child gender by rating dimension interaction,  $F(3.47, 173.24) = .15$ ,  $p = .95$ . Therefore, parent and child gender were not employed as factors in subsequent analyses.

Further, to address the question of whether mother and father attribution data could be considered independently for cases in which both the mother and father of the same child participated in the study, inter-parent correlations were calculated for the 10 mother-father couples' ratings on the five attribution ratings and the collapsed response rating. Only one of the six correlations between mothers' and fathers' ratings was significant (intent:  $r(10) = .67$ ,  $p < .05$ ). Given that a statistically significant correlation was found for only one of the six rating dimensions, and that parental attributions were assumed to be primarily characteristic of the individual parent, as opposed to a child characteristic, data available from both

the mother and father of a child were considered independently.

### Main Analyses

In order to minimize the chance of committing Type I errors, the following alpha-protecting strategies were employed. In interpreting multivariate analysis of variance (MANOVA) results for each primary research question, univariate tests were only considered when the overall multivariate F value was significant at  $p < .05$ . Post hoc analyses were performed using Tukey's Honestly Significant Difference test, a test which maximizes control over familywise error rates when making pairwise comparisons among group means (Howell, 1987). These post hoc tests were conducted with alpha set at .01. In the case where two MANOVAs were conducted to address the question of whether a context of ADHD behaviour (either an inattentive or impulsive behavioural context) influenced attributions of ODD child behaviours, the alpha level was set at .025 for each MANOVA.

To address the first research question, do parents make different attributions for and react differently to INATT, IMP and ODD child behaviours, parent responses across the three scenario types consistent for context and target behaviour (INATT-INATT-INATT-INATT, IMP-IMP-IMP-IMP, and ODD-ODD-ODD-ODD) were compared using a repeated measures MANOVA design with scenario type as a within-subject factor, and the five attribution and one response rating as multiple

dependent variables. The overall effect of scenario type was statistically significant,  $F(12, 194) = 12.17, p < .001$ . Follow-up univariate analyses indicated significant effects on all rating dimensions (locus:  $F(2, 102) = 13.06, p < .001$ ; control:  $F(2, 102) = 34.16, p < .001$ ; stability:  $F(2, 102) = 12.95, p < .001$ ; intent:  $F(2, 102) = 63.35, p < .001$ ; blame:  $F(2, 102) = 51.39, p < .001$ ; and response:  $F(2, 102) = 34.27, p < .05$ ).

Tukey's HSD post hoc tests indicated that INATT and IMP behaviours were rated as caused by factors more internal to the child than ODD behaviours, however there was no difference in ratings of locus for INATT and IMP behaviours. On the control dimension, Tukey's HSD post hoc tests indicated that parents rated INATT behaviours as least controllable and ODD behaviours as most controllable, with significant differences in ratings of control across the three types of behaviour. On the stability dimension, post hoc tests indicated that parents rated INATT behaviours as caused by more stable factors than IMP and ODD behaviours, with no differences in ratings for IMP and ODD scenarios. For the dimensions of intent and blame, post hoc tests indicated that parents rated INATT behaviours as least intentionally performed and least blameworthy of the three types of behaviour, and ODD behaviours as most intentional and most blameworthy, with significant differences in ratings across all three types of behaviour. Finally, on the response dimension, post hoc tests revealed that parents

reported least negative responses to INATT behaviours, and most negative responses to ODD behaviours, with significant differences across all three types of behaviour. In summary, parents discriminated between ADHD and ODD child behaviours along the dimension of locus, and discriminated among INATT, IMP and ODD child behaviours along the attribution dimensions of control, intent and blame, as well as on the response dimension. On the stability attribution dimension, only parents' ratings for the INATT behaviours differed from their ratings of ODD behaviours. The means and standard deviations for the five attribution rating dimensions and one response dimension across the three scenarios types are presented in Table 5. Table 6 provides the effect sizes for comparisons between parents' mean ratings for ODD versus INATT behaviours and ODD versus IMP behaviours.

To address the second research question regarding the effects of ODD behaviours on parents' attributions for and reactions to INATT and IMP child behaviours, two additional repeated-measures MANOVAs were conducted, each with an alpha level of .025. The first MANOVA compared parents' attribution and reaction ratings of INATT behaviors occurring in the context of other INATT behaviors (INATT-INATT-INATT) to ratings made for the same INATT behaviors occurring in the context of ODD behaviors (ODD-ODD-INATT). The overall effect for scenario type was not significant,  $F(6, 46) = 1.44$ ,  $p = .22$ . The second MANOVA compared parents' ratings of IMP behaviors occurring in the



Table 5.

Means and Standard Deviations for Attribution and Response  
Ratings for Inattentive, Impulsive and Oppositional Child  
Behaviours

	Behaviour		
	Inattentive	Impulsive	Oppositional
Locus	3.11 <sup>a</sup> (1.58)	3.35 <sup>a</sup> (1.55)	4.21 <sup>b</sup> (1.81)
Control	3.71 <sup>a</sup> (1.73)	4.59 <sup>b</sup> (1.97)	5.52 <sup>c</sup> (1.79)
Stability	3.69 <sup>a</sup> (1.85)	4.46 <sup>b</sup> (2.02)	4.93 <sup>b</sup> (1.83)
Intent	2.90 <sup>a</sup> (1.41)	3.77 <sup>b</sup> (1.79)	5.76 <sup>c</sup> (1.86)
Blame	3.36 <sup>a</sup> (1.42)	4.51 <sup>b</sup> (1.91)	5.73 <sup>c</sup> (1.68)
Response	4.66 <sup>a</sup> (1.69)	5.52 <sup>b</sup> (1.64)	6.17 <sup>c</sup> (1.64)

Note. Scores can range from 1 to 10. Higher scores indicate more external locus, more controllability, less stability, more intent, more blame, and more negative reaction. Means in the same row that do not share superscripts differ at  $p < .05$  in Tukey's post hoc tests.  $N = 52$  parents.

Table 6.

Effect Sizes for Comparisons between Mean Ratings for ODD  
versus Inattentive Behaviours and ODD versus Impulsive  
Behaviours

	Comparison	
	ODD versus Inattentive	ODD versus Impulsive
Locus	.63	.49
Control	1.04	.63
Stability	.64	.28
Intent	1.40	1.11
Blame	1.45	.72
Response	1.02	.46

Note. Effect sizes reflect standardized mean differences for matched pairs and were calculated using the formula provided by Cohen (1988; p. 48).

context of other IMP behaviors (IMP-IMP-IMP-IMP) to ratings made for the same IMP behaviors occurring in the context of ODD behaviors (ODD-ODD-ODD-IMP). The overall effect for scenario type was marginally significant,  $F(6, 46) = 2.59$ ,  $p = .03$ . Follow-up univariate ANOVAs only revealed a significant effect for the attribution dimension of intent,  $F(1, 51) = 7.47$ ,  $p < .01$ . Parents rated IMP behaviors preceded by ODD behaviors as more intentionally performed by the child compared with IMP behaviors preceded by other IMP behaviors. Means and standard deviations for the INATT-INATT-INATT-INATT versus ODD-ODD-ODD-INATT comparisons and the IMP-IMP-IMP-IMP versus ODD-ODD-ODD-IMP comparisons, and the effect sizes for each comparison, are presented in Table 7.

Finally, a fourth MANOVA compared responses to ODD behaviors when they occurred in the context of INATT behaviors (INATT -INATT-INATT-ODD), in the context of IMP behaviors (IMP-IMP-IMP-ODD), or in the context of other ODD behaviors (ODD-ODD-ODD-ODD). With an alpha level of .05, the effect of scenario type was not statistically significant,  $F(12, 194) = 1.08$ ,  $p = .39$ . The means and standard deviations for the three scenario types are presented in Table 8. The effect sizes for comparisons between mean ratings for ODD behaviours presented in the context of ODD versus ADHD behaviours are presented in Table 9.

Table 7.

Means and Standard Deviations for Attribution and Response Ratings for Inattentive and Impulsive Behaviours in Different Contexts

Context:	Inattentive	Oppositional	
Behaviour:	Inattentive	Inattentive	Effect Size <sup>a</sup>
Locus	3.11 (1.58)	3.27 (1.49)	.15
Control	3.71 (1.73)	3.92 (1.69)	.20
Stability	3.69 (1.85)	3.92 (1.89)	.19
Intent	2.90 (1.41)	3.27 (1.61)	.27
Blame	3.36 (1.42)	3.54 (1.55)	.18
Response	4.66 (1.69)	4.56 (1.59)	.14
Context:	Impulsive	Oppositional	
Behaviour:	Impulsive	Impulsive	Effect Size
Locus	3.35 (1.55)	3.46 (1.40)	.10
Control	4.59 (1.97)	4.77 (1.75)	.17
Stability	4.46 (2.02)	4.39 (1.85)	-.05
Intent	3.77 (1.79)	4.21 (1.75)	.38
Blame	4.51 (1.91)	4.46 (1.61)	.03
Response	5.52 (1.64)	5.44 (1.65)	.09

Note. Scores can range from 1 to 10. Higher scores indicate more external locus, more controllability, less stability, more intent, more blame, and more negative reaction.  $N = 52$  parents. <sup>a</sup> Effect sizes reflect standardized mean differences for matched pairs and were calculated using the formula provided by Cohen (1988; p. 48).

Table 8.

Means and Standard Deviations for Attribution and Response  
Ratings for Oppositional Behaviours in Different Behavioural  
Contexts

Context:	Inattentive	Impulsive	Oppositional
Behaviour:	Oppositional	Oppositional	Oppositional
Locus	4.20 (1.76)	4.00 (1.85)	4.21 (1.81)
Control	5.19 (1.84)	5.41 (1.63)	5.52 (1.79)
Stability	4.75 (2.01)	4.81 (1.79)	4.93 (1.83)
Intent	5.31 (1.87)	5.47 (1.85)	5.76 (1.86)
Blame	5.31 (1.81)	5.27 (1.65)	5.73 (1.68)
Response	5.96 (1.68)	5.94 (1.57)	6.17 1.64)

Note. Scores can range from 1 to 10. Higher scores indicate more external locus, more controllability, less stability, more intent, more blame, and more negative reaction. N = 52 parents.

Table 9.

Effect Sizes for Comparisons between Mean Ratings for ODD Behaviours Presented in the Context of ODD versus ADHD Behaviours

	Context	
	ODD versus Inattentive	ODD versus Impulsive
Locus	.01	.13
Control	.19	.06
Stability	.12	.08
Intent	.23	.22
Blame	.31	.38
Response	.20	.23

Note. Effect sizes reflect standardized mean differences for matched pairs and were calculated using the formula provided by Cohen (1988; p. 48).

Secondary Analyses

To examine the association between maternal depression and attributions, mothers' attribution ratings were averaged across all scenario types and correlated with the mothers' scores on the CES-D. No correlations between mothers' scores

on the CES-D and mothers' attribution and response ratings reached statistical significance ( $ps > .05$ ).

To examine the association between child age and attributions, mothers' and fathers' attribution ratings were aggregated across scenario types and correlated with child age. Again, no significant correlations between child age and parents' attribution and reaction ratings emerged ( $ps > .05$ ). Correlations between mothers' CES-D scores and mothers' attribution and response ratings, and between child age and parents' attribution and response ratings are presented in Table 10.

Table 10.

Correlations Between Mothers' CES-D Scores and Mothers' Attribution and Response Ratings, and Child Age with Parents' Attribution and Response Ratings

	CES-D Score ( $n=39$ mothers)	Child Age ( $N=52$ parents)
Locus	-.16	.02
Control	-.09	.09
Stability	-.16	-.07
Intent	.10	.02
Blame	.13	-.07
Response	.12	.01

Note. Higher scores indicate more depressed mood, older child age, more external locus, more controllability, less stability, more intent, more blame, and more negative reaction.

### **Discussion**

#### Attributions for Inattentive, Impulsive and Oppositional Child Behaviours

This study examined parents' attributions for inattentive, impulsive and oppositional child behaviours and parents' anticipated affective and behavioural responses to these three types of behaviour. As predicted, parents reported different attributions for and responses to inattentive, impulsive and oppositional child behaviours. Differences were found across all three behaviour types along the expected dimensions of control, intent, blame and affective/behavioural response, with parents perceiving inattentive behaviours as least controllable by the child, least intentionally performed and least blameworthy, and oppositional child behaviours as the most controllable, most intentionally performed and most blameworthy. Similarly, parents also reported differences in their affective/behavioural reactions to the three types of child behaviour, with inattentive behaviours eliciting the least negative responses, and oppositional behaviours eliciting the most negative responses. These findings replicate and extend previous research findings in which adults perceive ODD behaviours as more controllable by children compared



with ADHD behaviours, and rate their anticipated affective and behavioural reactions as more negative when responding to ODD behaviours compared with behaviours reflecting ADHD (Johnston & Patenaude, 1994; Johnston, et al., 1992).

Furthermore, these findings add support for the appropriateness of a two-factor model of ADHD.

Parents also differentiated among ADHD and ODD behaviours along the causal attribution dimensions of locus and stability, with parents rating both inattentive and impulsive child behaviours as caused by factors more internal to the child compared with oppositional behaviours, and rating inattentive behaviours as caused by more stable factors compared with both impulsive and oppositional behaviours. Previous studies examining parent attributions for child behaviours reflecting symptoms of ADHD versus ODD failed to find differences along these dimensions. It may be that, by teasing apart the inattentive versus impulsive symptoms of ADHD in this study, we were able to reveal differences in attributions of stability for inattention versus impulsivity and opposition because in the previous studies, the ADHD behavioural stimuli consisted of a combination of inattentive and impulsive-hyperactive child behaviours. Also, the differences revealed along the dimension of causal locus may have been found, in part, by using a more stable, reliable measure of parent attributions than has been employed in previous studies.

An alternative explanation for the findings along the dimension of causal locus is that the findings may reflect an artifact of the behavioural stimuli. Pilot testing of the behavioural stimuli employed in this study indicated small associations between ratings of causal locus and ratings of the extent to which the behavioural stimuli were perceived as realistic and prototypical, with less realistic and typical behaviours attributed to more external, situational causes. Given that students in the pilot samples rated inattentive child behaviours as somewhat more realistic compared with impulsive and oppositional behaviours, the findings of greater ratings of internal causal locus for these behaviours may, in part, be an artifact of the extent to which the inattentive behaviour stimuli were perceived by parents as realistic for their own child.

It is important that the differences in attributions and reactions to inattentive, impulsive and oppositional child behaviours revealed in this study are understood within the context of the mean levels of the attribution and reaction ratings. The average attribution and reaction ratings indicated that parents generally saw all three types of problematic child behaviours as caused by factors relatively internal to and uncontrollable by the child, and as due to relatively stable causes. Also, all three types of behaviour were perceived as relatively unintentionally performed by the child and the child generally not blamed for the misbehaviours (with oppositional behaviours falling

about midrange on the scales ranging from "not at all intentional" to "completely intentional" and "not at all to blame" to "very much to blame".) Similarly, mean ratings for parent responses to each of the three types of child behaviour fell around the midpoint of the scales that ranged from not at all to very negative affective and behavioural responses. Overall, these mean rating levels were similar to those reported in previous research using similar methodologies to assess attributions and responses (e.g., Freeman, et al., 1997; Johnston & Freeman, 1997).

Also, in interpreting the differences in attributions and reactions across the three types of child behaviour, the difficulty of assessing the "true" causes of child behaviour must be considered. There is no "gold standard" to use to determine whether the different attributions formed by parents in response to inattentive, impulsive and oppositional child behaviours reflect "true differences" in the causes of these different types of behaviour. However, this pattern whereby symptoms of ADHD were perceived as relatively less controllable by the child and less intentionally performed compared with oppositional behaviours is consistent with research supporting the heritability and neurobiological underpinnings of ADHD (e.g., Faraone & Biederman, 1998; Hechtman, 1994; Rutter, Silberg, O'Connor, & Siminoff, 1999) and the widely adopted "disease model" of ADHD (Barkley, 1990), as well as with research supporting the role of social learning factors in

conduct disorders (Frick et al., 1992; Patterson, DeBaryshe, & Ramsey, 1989). Regardless of whether parent attributions are reflective of the "true" causes of inattentive, impulsive and oppositional child behaviours, the role attributions may play in shaping the ways that parents interact with their children, as well as parents' treatment preferences or expectations, make it important to understand the attributions formed by parents of children with ADHD to explain and understand their children's behaviour.

Parents in this sample did indicate that they have learned about ADHD from a variety of sources including the media, books, conferences, and parent support groups. To some extent, their attributions for the three types of child behaviour problems examined in this study may reflect information they have sought and received through these different avenues. However, it is interesting to note that past research has found that undergraduate students, who are less likely to be knowledgeable about ADHD, also form different attributions to explain behaviours characteristic of ADHD versus ODD (Johnston, Patenaude, & Inman, 1992). Further research is needed to determine whether parents of nonproblem children would also make different attributions for inattention versus impulsive child behaviours, or whether this discrimination is more likely to be found among parents who are likely to have greater knowledge about ADHD and the types of difficulties which characterize this disorder. In addition to comparing attributions offered by

parents of children with and without ADHD, it will also be important to compare attributions offered by parents of ADHD children who are well informed about the nature of this disorder (perhaps via their involvement with support groups for parents of children with ADHD) with attributions formed by parents who are relatively less informed.

### Context Effects

The second research question addressed in this study was the influence of behavioural context on parents' attributions and reactions. The prediction that the presence of oppositional behaviour would influence parents' attributions for and reactions to behaviours characteristic of ADHD received little support. Parents did not differ in their attributions for and reactions to inattentive child behaviours regardless of whether they were presented in the context of other inattentive behaviours or in the context of oppositional behaviours. Similarly, no differences were found between parents' attributions for and responses to impulsive child behaviours presented in the context of impulsive versus oppositional child behaviours, with the exception of the marginally significant finding that impulsive behaviours presented in the context of oppositional child behaviours were perceived as more intentionally performed by the child compared with impulsive behaviours occurring following a context of other impulsive behaviours. As expected, no differences were revealed in parents' attributions for and reactions to oppositional

child behaviours regardless of whether they were presented in the context of inattentive, impulsive or oppositional behaviour.

The lack of behavioural context effects in this study does little to clarify the sparse and conflicting findings available to date regarding the impact of co-occurring ADHD and ODD behaviours on parent attributions. One previous study found that ADHD behaviours presented following a context of ODD behaviours were seen as more controllable and elicited more negative reactions from undergraduate students compared with ADHD behaviours presented following a context of other ADHD behaviours (Johnston, et al., 1992). Freeman, et al. (1997), however, reported contradictory findings. In their sample of parents of children with ADHD, ADHD behaviours preceded by a context of ODD behaviours were perceived as less controllable by the child compared with ADHD behaviours presented in a context of other ADHD behaviours, although parents reported similar reactions to ADHD behaviours regardless of whether they were preceded by ADHD or ODD behaviours. Also, Johnston et al. (1992) found that a context of ADHD behaviours resulted in students perceiving ODD behaviours as less controllable compared to when ODD behaviours were presented in the context of other ODD behaviours. On the other hand, both the current investigation and the Freeman et al. (1997) study found that parents of children with ADHD made similar attributions for ODD behaviours, regardless of context. This pattern of

findings, whereby ODD behaviours alter perceptions of ADHD behaviours, but not the reverse, is consistent with research examining teacher ratings of child behaviour where ODD behaviours have been found to influence teacher' ratings of ADHD symptoms in children, but ADHD behaviours did not influence teachers' ratings of ODD behaviours (Abikoff, et al., 1993; Schachar, et al., 1986; Stevens, et al., 1998).

It may be that the lack of findings for a robust effect of behavioural context on parents' attributions for child behaviour is a result of the nature of the stimuli employed to study context effects. In all three studies which have examined context effects, the stimuli for eliciting attributions described a series of child behaviours occurring over the course of a day, with behaviours earlier in the day (i.e., in the morning, at lunch and after school) providing the behavioural context, and a behaviour occurring in the evening providing the target stimulus for parents' attributions. With the occurrence the behaviours being quite temporally distinct (i.e., the behaviours are separated by a significant amount of time), parents may be less likely to consider previously occurring behaviours as having an influence on the target behaviour than if the context and target behaviours had been presented closer in time (i.e., as a cluster of behaviours). One recent study compared mothers' attributions for single episodes of child noncompliance versus "power bouts" during which the mother was presented with six repeated acts of child noncompliance

(Ritchie, 1999). Ritchie found that over time, mothers presented with power bouts with children, as compared with mothers presented with single episodes of child noncompliance, increasingly attributed the child's misbehaviour to a negative personality and increasingly perceived the child to be testing their authority. Overall, this study suggests that power bouts or clusters of noncompliant behaviours differ in the maternal cognitions and behavioural reactions they elicit compared with single acts of child noncompliance. It may be fruitful for future research to examine the effects of behavioural context when behaviours are presented as "bouts" of misbehaviour, rather than as a string of single episodes of inattentive, impulsive and/or oppositional behaviours.

#### Maternal Depression

Regarding the impact of maternal depression on mothers' attributions for and reactions to child misbehaviours, the hypothesis that mothers who reported greater levels of depressive symptomatology would report more negative attributions for and reactions to the problematic child behaviours was not supported. There were no significant correlations between maternal depression and mothers' attributions and reaction ratings. This finding stands in contrast to several previous studies which have linked maternal depressed mood to mothers' perceptions of or reactions to child behaviour. For example, although Krech and Johnston (1992) found that single mothers reporting



higher levels of depressed mood did not differ in their perceptions of child behaviours (i.e., their perceptions of how problematic the behaviour was and their ratings regarding the extent to which the child performed the behaviour on purpose) compared with single mothers reporting lower levels of depressed mood, they did find that mothers reporting higher levels of depressed mood did report stronger and more negative affective reactions to child behaviours. These researchers did not report on the levels of child behaviour problems exhibited by the children of the participants in this study. However, the study did not target mothers of difficult children.

Geller and Johnston (1995) did find an association between maternal depression and mothers' attributions, with mothers reporting greater depressed mood attributing negative child experiences to causes that were more internal to and controllable by the child compared with mothers reporting lower levels of depressed mood. However, this study did not target mothers of difficult children. Mothers were recruited via advertisements in community newspapers and family/recreation centers. In this study, children were rated on the revised Conners' Parent Rating Scale (Goyette, Conners & Ulrich, 1978), and children's mean scores on a subscale of this measure assessing conduct problems fell at the 50<sup>th</sup> percentile (ranging between the 7<sup>th</sup> to the 99<sup>th</sup> percentiles). In contrast, all children involved in the current investigation were rated by at least one parent as

meeting diagnostic criteria for ADHD, and 37 of the 42 children were rated by at least one parent as meeting criteria for ODD. Furthermore, when Geller and Johnston (1995) examined the unique contributions of maternal depressed mood and child conduct problems to the prediction of mothers' attributions for child behaviour, neither variable was found to predict attributions involving dimensions of causal locus and control, and only child conduct problems marginally contributed to the prediction of attributions along the dimensions of globality and stability. The divergent results may be explained by the differences in level of problem behaviours presented by the children represented in our study versus those studies which have reported associations between maternal depression and attributions for child behaviour, with associations between maternal depression and attributions more likely to be found among parents of nonproblem children.

Another possibility is that the lack of associations between mothers' scores on the CES-D and maternal attributions are the result of having a sample of mothers presenting with relatively little depressive symptomatology. The mothers' mean CES-D score in this sample was not higher than would be expected from average community residents, and community surveys generally find between 5 to 19% of respondents have CES-D scores of 16 or higher (e.g., Aneshensel & Stone, 1982; Linn & Husaini, 1987; Noll & Dubinsky, 1985; Radloff, 1977; Roberts & Vernon, 1983).

Also, although the empirical literature supports the use of the CES-D as a screening tool for depression, the relationship between self-reported symptoms on this measure and diagnoses of depression based on structured clinical interviews has been modest, with cutoff scores of 16 yielding false negative rates for current depression as high as 40% (e.g., Myers & Weissman, 1980; Roberts & Vernon, 1983). Therefore, future research investigating the relationship between maternal depression and mothers' attributions for child behaviours might consider additional strategies such as structured clinical interviews to assess maternal depression.

#### Child Age

Regarding the impact of child age on parents' attributions and reactions, the hypotheses that parents of older children would attribute child behaviours to more internal, controllable and stable causes, would form greater attributions of intent and blameworthiness, and would report more negative reactions to problem child behaviours compared with parents of younger children was not supported. In this study, no significant correlations were found between child age and parents' attribution and reaction ratings.

A number of researchers have reported differences in parents' beliefs about and responses to child behavior based on child age (e.g., Dix, Ruble, Grusec, & Nixon, 1986; Dix, et al., 1989; Gretfarsson & Gelfand, 1988). However, the age ranges examined in these studies were wider than the age

range of the children whose parents participated in the current investigation. For example, while the current investigation examined the attributions among parents of 6 to 12 year old children with ADHD, Dix et al. (1986) studied parents of 5, 9 and 13 year olds, and in a second study, parents of 4, 8 and 12 year olds. Gretarsson and Gelfand's study (1988) that did find significant age effects (with mothers making more internal attributions for older children's misbehaviours compared with younger children) examined parents of children in three age groups: 4 to 6 year olds, 7 to 9 year olds, and 10 to 12 year olds. Finally, research by Dix et al. (1989) which reported parents of older children to attribute greater responsibility to their children for maladaptive social behaviours, and to report stronger affective and behavioural reactions to these behaviours compared with mothers of younger children, examined parents of children in preschool through the sixth grade.

A number of other studies have failed to find age effects on parent attributions. For example, Cote and Azar (1997), in a sample of parents of fifth, eighth, and eleventh grade children and adolescents, failed to find significant effects for child age on parents' attributions and emotional reactions to child misbehaviours. In fact, in this study, there was a trend for parents of the youngest age group (representing parents of 10 to 12 year olds) to hold their children more accountable for misbehaviours than

parents of older children. This finding, combined with findings from the aforementioned studies, suggests that the association between child age and parent attributions may only be seen when including younger children (i.e., preschoolers) in the sample, and that the association between child age and parent attributions may, in fact, be curvilinear. While preschool children may be seen as less responsible for misbehaviours, with greater levels of responsibility being ascribed to elementary-school-aged children, there may again be a decrease in the amount of responsibility attributed to adolescents for social behaviours with increasing recognition of the influence of peers and teachers in these children's lives as they approach and reach adolescence (Cote & Azar, 1997). Future studies investigating the effects of child age on parent attributions would benefit from including both younger and older children (i.e., preschoolers and adolescents) for comparison. Also, longitudinal research designs would be helpful in learning more about how parents' understanding of child misbehaviours, and their affective and behavioural reactions to misbehaviours may change or remain static as their child develops.

#### Gender

Consistent with previous studies (e.g., Johnston & Freeman, 1997; Johnston & Patenaude, 1994), this study found no significant difference in attributions and reactions reported by mothers and fathers. However, the number of

fathers in this sample was small. Further research comparing larger samples of mothers and fathers is warranted. Also, this study found no differences between attributions and reactions formed by parents of boys versus girls with ADHD. However, only 15 percent of the parents in this sample were parents of girls with ADHD. The failure to find differences in attributions across parents of boys versus girls is consistent with other research which has found boys and girls with ADHD-Combined Type to appear quite similar across a variety of measures (e.g., Eiraldi et al., 1998). Similarly, the few studies of parent attributions for child behaviour that have explicitly examined differences in parents' attributions for and reactions to behaviours of sons versus daughters have typically reported an absence of child gender effects (e.g., Dix et al., 1986; Himmelstein, Graham, & Weiner, 1991; Rubin & Mills, 1990). Nonetheless, examination of child gender effects on parent attributions in larger samples of girls is warranted, particularly when examining attributions for child behaviours in which there are likely to be sex-linked differences in tolerance of or expectations for specific behaviours such as aggression or opposition-defiance.

### Limitations

Several limitations should be noted in interpreting the findings from this research. As mentioned above, researchers should work toward including larger numbers of fathers and parents of girls in studies of parent perceptions of child

behaviour to increase confidence in findings reporting no significant effects for parent or child gender.

Another limitation of the current investigation is the sole reliance on written analogue stimuli to assess parents' attributions for child behaviour. Although the generalizability of responses to written analogue child behaviours to real child behaviours is not assured, previous research in our lab has found similar patterns of parent attributions across methodologies examining parents' responses to written analogue stimuli, recalled events from real life, and videotaped examples of the parents' own child's behaviour (Johnston & Freeman, 1997). Furthermore, given that individuals' attributions are likely to be influenced by specific contextual details of situations, it was felt that analogue stimuli were appropriate in this study to control for extraneous situational information in an effort to isolate the effects of the behavioural manipulation. An additional advantage of having subjects respond to specific written scenarios is that this methodology does not rely on parents' recall of real life interactions in which problematic child behaviours occurred. This helps avoid the potential problem of parents' attributions being influenced by their knowledge of how they responded in the situation and the ultimate outcome of the parent-child interaction.

Another limitation was the reliance on parent reports of anticipated affective and behavioural responses to child

behaviours. Future research examining parents' attributions for and reactions to child behaviour might use observational procedures to measure parent responses to different types of child behaviour in an effort to assess parent cognitions as they occur in more spontaneous, naturalistic interactions with their children.

Finally, the findings of this study most likely reflect attributions formed by parents who have experience with interventions for ADHD and have some knowledge about this disorder. However, given recent findings suggesting that the majority of children with ADHD are not receiving treatment (Jensen et al., 1999), it is not known whether the findings of this study apply to most parents of children with ADHD. Further study is needed to explore parents' attributions for the misbehaviours of ADHD children who are not receiving treatment and to examine the relationship between parents' attributions for child behaviour problems and parents' knowledge or understanding regarding the nature of ADHD.

#### Summary and Directions for Future Research

In summary, the primary contributions of this research are its replication of parents' differential attributions for and reactions to child behaviours characteristic of ADHD versus ODD, and its extension of this work by examining the inattentive versus impulsive symptoms dimensions of ADHD separately. It was revealed that parents do differentiate not only between ADHD and ODD behaviours, but among



inattentive, impulsive and oppositional behaviours. Future work will continue to investigate context effects using alternate methodologies (i.e., stimuli in which context and target behaviours occur in closer temporal proximity) and to examine parent variables (e.g., parental attitudes) which may influence parent perceptions and understanding of their children's difficult behaviours. For example, an empirical question is whether parental attributes such as cognitive inflexibility are associated with more or less differentiated responses to inattentive versus impulsive versus oppositional child behaviours. Future research should also explore the relation between parents' attributions for their children's problematic behaviours and children's own understanding of their behaviour, and how parents' attributions for child behaviours might be communicated to their children.

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## Appendix A

DSM-IV Symptoms of Attention Deficit Hyperactivity Disorder

## Inattention Symptoms:

1. often has difficulty sustaining attention in tasks or play activities
2. often does not seem to listen when spoken to directly
3. often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behaviour or failure to understand instructions)
4. often has difficulty organizing tasks and activities
5. often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort
6. often loses things necessary for tasks or activities
7. is often easily distracted by extraneous stimuli
8. is often forgetful in daily activities

## Impulsivity Symptoms:

1. often blurts out answers before questions have been completed
2. often has difficulty awaiting turn
3. often interrupts or intrudes on others



Hyperactivity Symptoms:

1. often fidgets with hands or feet or squirms in seat
2. often leaves seat in classroom or in other situations in which remaining seated is expected
3. often runs about or climbs excessively in situations in which it is inappropriate
4. often has difficulty playing or engaging in leisure activities quietly
5. is often on the go or often acts as if driven by a motor
6. often talks excessively

## Appendix B

DSM-IV Symptoms of Oppositional Defiant Disorder

1. often loses temper
2. often argues with adults
3. often actively defies or refuses adults' requests or rules
4. often deliberately does things to annoy other people
5. often blames others for his/her own mistakes or misbehaviour
6. often is touchy or easily annoyed by others
7. often is angry and resentful
8. often is spiteful and vindictive

## Appendix C

Sample INATT-INATT-INATT-INATT Scenario

In the morning as you walk out to the car to leave for work, you remind your child to give her teacher a note you wrote explaining that the child must leave class early for a dentist appointment. Your child says he lost the note, so you have to go back into the house to write another one. Later that day, you and your child are folding the laundry in the family room. The child sorts and folds some of her socks and takes them up to her room. However, he does not come back to finish the rest, leaving his laundry scattered all over the sofa, with no room to sit down. Then you ask your child to gather up her library books because they are due that day. Your child starts to gather some books; but, when you are ready to drive to the library, you see that your child got distracted by the TV and did not finish gathering all his books. After dinner, you are busy writing a letter when your child asks you to help him practice catching a baseball. You put aside the letter and join your child outside. After being thrown only a couple of balls, however, the child starts missing the ball because he is not paying attention.

Sample IMP-IMP-IMP-IMP Scenario

You are in the kitchen preparing breakfast. Because you are out of bread and eggs, you ask your child what kind of cereal he would like to eat. Before you finish asking the question, the child blurts out that he wants eggs for breakfast and then rushes off to do something else. Later, you are in the kitchen speaking on the phone with a family friend. You've told your child that when you're finished talking, he can have a turn talking to the friend. While you are still speaking on the phone, you hear your child in the background repeatedly asking "is it my turn yet?" That afternoon, you and a friend are sitting at the table playing a game of chess. In the middle of your game, your child walks up to the table and starts to touch the chess pieces and show you how they are allowed to move, interrupting your game. After dinner, you ask your child if he has a soccer practice tomorrow evening. But as soon as your child hears the word soccer, she blurts out that there is no game tonight. You repeat the question, and again the child blurts out an answer before you finish asking the question.

Sample ODD-ODD-ODD-ODD Scenario

Just as you and your child sit down at the dining room table for lunch, you ask your child to help by going to the kitchen to get a plate of sandwiches that are sitting on the counter. Your child tells you that he doesn't like sandwiches and is not going to get the plate. Later, you give your child a box containing new running shoes that you bought for him. Your child opens the box, looks at the shoes, and tells you he doesn't like them. When you tell him the shoes can't be returned, your child has a tantrum and stamps his feet. After school, you find your child using the bathroom sink to fill a water bottle to take on a bike ride. When you ask him to go use the kitchen sink because you want to wash up, the child starts arguing, saying that the bathroom water is better than the water in the kitchen. After dinner that evening, you remind your child that he has to do his homework before he can turn on the television. Your child gets angry, throws down his book bag, and says that he's got so much homework that he'll never get to watch TV.

Sample INATT-INATT-INATT-ODD Scenario

Your child has the chore of feeding the family dog before going to school. He opens a can of dog food, but then notices a book on the table and goes to take a look at it. Later, you find the open can still sitting on the counter and you have to feed the dog yourself. Then, just as you head out the door to go to work, your child says he needs you to sign a form so she can go on a field trip that day. Your child had the form when he came home from school yesterday, but after searching through his backpack, you realize he has lost it. After school, you and your child have decided to work on a craft project. After you clear off the dining room table and get all the craft materials together, your child starts to work on the project. A few minutes later, your child wanders away from the table, leaving the craft unfinished. After dinner that evening, you remind your child that he has to do her homework before he can turn on the television. Your child gets angry, throws down his book bag, and says that he's got so much homework that he'll never get to watch TV.

Sample IMP-IMP-IMP-ODD Scenario

Your child comes into the kitchen to play with his new action figure toys. Although you are working on the monthly budget and have your papers spread out across the table, your child dumps his toys out on the table, interrupting your work. Later, you are planning a trip to the shopping mall. Before you can finish asking your child if he wants you to buy her any school supplies, he says that he wants you to get him new runners. You start to repeat your question, but again the child blurts out an answer before the question is completed. That evening at the dinner table, you are passing around a basket filled with bread and buns. As the basket is passed around the table and each person takes some bread or a bun, your child reaches across your lap and grabs a piece of bread from the basket before it is his turn. That evening, you and your child are in the family room watching television. You want to watch part of the evening news, so you tell your child to turn the TV to Channel 6. The child refuses to turn the channel and places the remote control under the couch where you can't easily reach it.

Sample ODD-ODD-ODD-INATT Scenario

Your child is in the bathroom washing up before breakfast. As you walk past the bathroom, you remind the child to comb his hair and wash his face. Your child starts to argue with you, saying that he doesn't need to wash her face just to have breakfast. At lunch time, you see your child in his room playing with his pet hamster. When you ask him to put the hamster away in its cage and wash his hands before coming to the table for lunch, your child refuses. He says that the hamster is not dirty and that he isn't finished playing with her yet. Later that day you are about to head out the door to drive your child to music lessons. You call your child and tell her to get him instrument and come to the front door. Your child stamps his feet and yells that he doesn't want to go to lessons today. After dinner, you are busy writing a letter when your child asks you to help him practice catching a baseball. You put aside the letter and join your child outside. After being thrown only a couple of balls, however, the child starts missing the ball because he is not paying attention.

## Sample ODD-ODD-ODD-IMP Scenario

You and your child are having breakfast at the kitchen table. Because there is not much orange juice left, you tell your child to only pour half a glass. Angrily, your child knocks his glass away, saying that's not fair because everyone else got a full glass. Later that day, your child is working on a new puzzle and has the pieces spread all over the living room floor. When you ask the child to keep the pieces in one area, the child starts arguing with you, saying that he needs even more space because he has to sort the pieces into specific piles. Then, as you and your child are sitting down to dinner, you ask your son to help by bringing in the vegetables from the kitchen. Your child says that he won't go get the vegetables because he doesn't like how they taste and he never gets to eat what he wants. Later that day, you and your child are taking turns unloading groceries from the back seat of your car. As you reach in to the car to take out a bag of canned goods, your child pushes past you to grab another bag, knocking the bag from your hand and spilling the cans onto the floor of the car.

## Appendix D

Explanatory Cover Letter

Dear

Thank you for your interest in this study of parents' perceptions of child behaviours exhibited by children with ADHD/ADD.

This study is for a graduate thesis and is designed to gather information about parents' beliefs about the causes of behaviors exhibited by their children with ADD/ADHD, as well as parents' beliefs about ADHD in general. While planning and conducting this research, Wendy Freeman has been supported by a fellowship from Canada's National Health Research Development Program and is supervised by Dr. C. Johnston, Associate Professor of Psychology, U.B.C.

When the study is completed, we will send a summary of our results to the organizations who helped us by distributing pamphlets about the study. Also, we plan to publish a complete report of findings in a journal read by other researchers in this field, and present our findings at conferences attended by both researchers and clinicians who work with children with this condition. By learning about parents' thoughts and opinions regarding this disorder and the behavior of children with ADHD, we will learn more about the nature of this disorder and be better able to assist families who have children with ADHD.

You are asked to complete these questionnaires in the following few days, and return them in the enclosed addressed and stamped envelope. The questionnaire package will take about 90 minutes to complete and asks questions about your child's behaviour, the causes of your child's behaviour, your mood, and your thoughts about causes of, treatment for and influences on Attention Deficit Hyperactivity Disorder.

Please complete the sections marked Section A, Section B and Section C in order. If you find that these questionnaires take more than one hour to complete and are unable to finish all of the questionnaire package, please fill out as much as you can, and then send back the incomplete questionnaires as well as the sections you did complete. It is most important that we get Sections A and B filled out in their entirety.

Please keep your son \_\_\_\_\_ in mind when you are completing these questionnaires. Also, if your child takes medication for ADHD, please complete the questionnaires thinking of your child's behaviour when he is not medicated (e.g., weekends, after school when medication has worn off).

If the completed questionnaires are returned to U.B.C., then it will be assumed that you have consented to participate in the study. Participation in this study is completely voluntary and you are free to withdraw from the study at any time. Your responses will be kept strictly confidential and will be stored in a locked research lab at U.B.C.'s Department of Psychology. If you have any questions, please feel free to contact us at the ADHD lab in the Department of Psychology at U.B.C at (604) 822-9037, or call our toll free number, 1-888-588-2343.

Finally, if you would be interested in learning about any follow-up studies that might develop from this project, or would like to receive a summary of the findings of this study, please write your name and address on the bottom portion of this letter, and return it along with your completed questionnaires.

Thank you very much for your time and effort in filling out these questionnaires.

Sincerely,

Wendy Freeman, M.A.

Charlotte Johnston, Ph.D.,  
Associate Professor



## Appendix E

Demographic Information Form

**General Family Information:** Form completed by Mother / Father

**Child Information:**

Target Child: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

If child was adopted, age at adoption: \_\_\_\_\_

Do you have any other children? Yes / No

If YES, please list below:

Male or Female    Age    Please any difficulties this child has been diagnosed with,  
if applicable (e.g., ADHD, depression, a learning disability)?

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**Marital Status:**    ☐ Single  
                               ☐ Married, number of years \_\_\_\_\_  
                               ☐ Divorced  
                               ☐ Widowed

**Mother Information:**

- a) Age: \_\_\_\_\_  
 b) How far did you go in school? \_\_\_\_\_  
 c) Are you currently employed? Yes/ No  
 d) If employed, what do you do? \_\_\_\_\_  
 e) Are you the child's step-parent? Yes/ No  
     If YES, how long have you lived with the child? \_\_\_\_\_  
 f) Ethnicity: \_\_\_\_\_  
 g) Are you currently, or have you ever been diagnosed and/or treated for psychological problems (e.g., depression, anxiety)?  
     Problem    Current or Past    Treatment (e.g., therapy, medication)

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**Father Information:**

- a) Age \_\_\_\_\_
- b) How far did you go in school? \_\_\_\_\_
- c) Are you currently employed? Yes/ No \_\_\_\_\_  
If yes, what do you do? \_\_\_\_\_
- d) Are you the child's step-parent? Yes/ No \_\_\_\_\_  
If YES, how long have you lived with the child? \_\_\_\_\_
- e) Ethnicity: \_\_\_\_\_
- f) Are you currently, or have you ever been diagnosed and/or treated for psychological problems (e.g., depression, anxiety)?
- | Problem | Current or Past | Treatment (e.g., therapy, medication) |
|---------|-----------------|---------------------------------------|
| _____   | _____           | _____                                 |
| _____   | _____           | _____                                 |

## Appendix F

Modified ADHD-Ratings Scale-IV

Circle the number that best describes your child's home behaviour over the past 6 months.

(If your child takes medication to manage his or her symptoms of ADHD, please rate your child's behaviour as it would be OFF MEDICATION).

Never or rarely=0    Sometimes=1    Often=2    Very often=3

Fails to give close attention to details or makes careless mistakes in schoolwork	0	1	2	3
Fidgets with hands or feet or squirms in seat.	0	1	2	3
Has difficulty sustaining attention in tasks or play activities.	0	1	2	3
Leaves seat in classroom or in other situations in which remaining seated is expected.	0	1	2	3
Does not seem to listen when spoken to directly.	0	1	2	3
Runs about or climbs excessively in situations in which it is inappropriate.	0	1	2	3
Does not follow through on instructions and fails to finish work	0	1	2	3
Has difficulty playing or engaging in leisure activities quietly.	0	1	2	3
Has difficulty organizing tasks and activities.	0	1	2	3
Is "on the go" or acts as if "driven by a motor".	0	1	2	3
Avoids tasks (e.g., schoolwork, homework) that require sustained mental effort	0	1	2	3
Talks excessively.	0	1	2	3
Loses things necessary for tasks or activities.	0	1	2	3
Blurts out answers before questions have been completed.	0	1	2	3
Is easily distracted	0	1	2	3
Has difficulty awaiting turn.	0	1	2	3
Is forgetful in daily activities.	0	1	2	3
Interrupts or intrudes on others.	0	1	2	3

1. How old was your child when he or she first started having the types of problems circled as 1, 2 or 3 on the previous page?

\_\_\_\_\_ years

2. How much of a problem are your child's symptoms of ADHD without treatment?

1—2—3—4—5—6—7—8—9—10

not at all  
a problem  
for my child

very much  
a problem  
for my child

3. To what extent do you feel some form of intervention or treatment is necessary to manage your child's ADHD/ADD symptoms?

1—2—3—4—5—6—7—8—9—10

not at all  
in need of  
treatment

very much  
in need of  
treatment

4. Has your child had problems with any of the behaviours described on the previous page in the school setting (when the child is not treated/medicated)?

YES NO

5. Below are some other behaviours children may exhibit. Please circle the number which best describes your child's behaviour for the past 6 months:

Never or rarely=0 Sometimes=1 Often=2 Very Often=3

Loses temper. 0 1 2 3

Argues with adults. 0 1 2 3

Actively defies or refuses to comply  
with adults' requests or rules. 0 1 2 3

Deliberately annoys people. 0 1 2 3

Blames others for his or her mistakes  
or misbehaviors. 0 1 2 3

Is touchy or easily annoyed by others. 0 1 2 3

Is angry or resentful. 0 1 2 3

Is spiteful or vindictive. 0 1 2 3

## Appendix G

Instructions for the Attribution Ratings

**INSTRUCTIONS: Please read carefully before proceeding with the next section of this questionnaire.**

For this section of the questionnaire package, you are asked to read through a number of scenarios describing a variety of parent-child interactions and imagine that the paragraph describes an interaction occurring between you and \_\_\_\_\_. If your child takes medication for ADHD, please imagine that the child behaviours were exhibited when the child was not medicated.

As you complete this section of the questionnaire package, you will find that child behaviours are often repeated across scenarios. That is, a behaviour you read about in one scenario will also appear in other scenarios. Despite this repetition, each scenario is somewhat different, and we ask you to read each scenario all the way through. After you have read through the entire scenario on a given page, we ask you to give your opinion about why your child would have exhibited the behaviour highlighted in bold print in that particular scenario.

**Before you start this section of the questionnaire, here is some information about how to use the ratings scales that follow each scenario.**

When trying to figure out why family members do the things they do, we often make judgments about the extent to which the person's behaviour was caused by something about the person versus something about the situation or other people. For example, if you saw a child fall down, you might think the reason the child fell was something about the child (perhaps the child is clumsy or he felt dizzy). On the other hand, if you believe the cause of the child falling down was because there was a crack in the sidewalk or because someone pushed the child, then you would see the cause of the child's behaviour as something about the situation or other people (there was a crack in the sidewalk or the child was pushed).

We also make judgments about whether the cause of a person's behaviour is something within their control. For example, if you believe the child fell down because he is clumsy, you might think that this reason for falling is not

controllable by the child. On the other hand, if you think the child fell because he was running too fast and not looking where he was going, you might believe that the cause of his falling was something within the child's control.

Sometimes we also make judgments about the cause of a person's behaviour is something that is stable versus something that changes over time. For example, if the child fell because he slipped on a banana peel, this would be a cause that changes over time (assuming that the banana peel is not always on the floor). On the other hand, if the child fell because he has a life-long physical disability which makes him prone to falling, then the reason the child fell is something stable because the disability is always present.

Also, when thinking about the behaviour of family members, we often make judgments about whether the person intended to exhibit the behaviour (did the child fall down on purpose or was the behaviour unintentional) and whether the person is to blame (would you blame the child for falling down or would you view the behaviour as something that was not the child's fault).

**Finally**, before you start this section of the questionnaire package, we realize that while sometimes the reasons a child performed a specific behaviour appear clear, there are often times when many things may influence behaviour and it much more difficult to determine or guess why the child did what he or she did. Therefore, we acknowledge that it can be difficult to make these ratings on the following pages. Please remember that there are no right or wrong answers. You know your child best and what we are interested in are your opinions about why your child would exhibit the types of behaviours described here. If you have difficulty making some of the ratings, just go with your first impressions.

## Appendix H

Attribution and Reaction Rating Scales

## Attribution Rating Scales:

1. To what extent was this child behaviour, ---brief description of behaviour---, caused by something about your child versus something about other people or the situation?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10  
 Completely Completely  
 something about something about  
 my child other people/the situation

2. To what extent was this behaviour caused by something that was within your child's control versus something not within the child's control?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10  
 Not at all within Completely within  
 the child's control the child's control

3. To what extent was this behaviour caused by something that is long-lasting or stable vs. something that is not long-lasting or variable over time?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10  
 long-lasting variable over time

4. To what extent did your child intend to perform this behaviour or exhibit this behaviour on purpose?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10  
 Not at all Completely  
 Intentional Intentional

5. To what extent is the child to blame for exhibiting this behaviour?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10  
 Not at all Very much  
 to blame to blame

## Reaction Rating Scales:

6. To what extent would you be upset by this behaviour when your child exhibited it?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10  
Not at all Very  
upset upset

7. To what extent would you express disapproval or reprimand your child for exhibiting this behaviour?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10  
Not at all Very Much