PARENTING STRESS AMONG PARENTS OF CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: THE ROLE OF CONTROL AND RESPONSIBILITY ATTRIBUTIONS

by

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ABSTRACT

Studies of the predictors of parenting stress have tended to neglect the role of parental cognitions. Two studies were conducted to examine the contribution of parents' self- and child-focused attributions of control and responsibility to parenting stress among parents of children displaying various degrees of Attention-Deficit/Hyperactivity Disorder (ADHD) behaviours. As a secondary focus, differences in parental adjustment difficulties were investigated among parents whose children evidenced low or high levels of ADHD as well as Oppositional Defiant Disorder (ODD) symptomatology.

Study one involved a community sample of 234 parents (primarily mothers of boys with a pre-established ADHD diagnosis); study two's sample included 156 parents attending community support groups for parents of children with ADHD. Parent attributions were measured using an analogue method in which parents made ratings in response to various scenarios depicting typical child misbehaviours or poor parent-child interactions.

Both studies supported the hypothesis that perceiving child misbehaviours as being beyond parental control predicted parenting stress even when child behaviour problems, parental depressed mood, family dysfunction (in study one) and child age (in study two) were statistically controlled. The second study, utilizing a comprehensive approach to the measurement of parental attributions, found that attributions of high child responsibility also contributed significant variance to parenting stress beyond the influence of several other variables. The subscales of a measure of causal control attributions (Parent Attribution Test), however, were not successful in predicting parenting stress.

Across the parental adjustment indices within both studies, adjustment problems in parents were dependent upon children's levels of ADHD and ODD symptomatology. However, ODD behaviours played a more significant role in parental depressed mood than did ADHD behaviours, and some evidence for the greater importance of ODD symptomatology in family dysfunction was found. For the parenting stress variable, the following pattern resulted: parents of nonproblem children reported the lowest stress, the combined ADHD and ODD group showed the worst, and the pure ADHD and pure ODD groups fell in the midrange. The results suggest the need for more comprehensive assessment of families with children displaying ADHD symptomatology, and the inclusion and empirical evaluation of attributional training segments in parenting programs.

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Introduction

Parenting is a stressful endeavour. In fact, it has been argued that children "produce the highest density of aversive events associated with any role in our culture" (Mash, 1984; p. 65). In addition to being pervasive, parenting stress can be a very grave problem, for not only do overly taxed parents suffer from a variety of emotional and physical health concerns (e.g., Anastopoulos, Guevremont, Shelton, & DuPaul, 1992; Breen & Barkley, 1988), but their heightened stress level places them at risk for dysfunctional parenting behaviours (Webster-Stratton, 1988, 1990) which can be associated with serious difficulties in children (Barkley, 1990; Patterson, DeBaryshe, & Ramsey, 1989) .

While parents of "normal" (i.e., nonclinic referred) children often report clinical levels of parenting stress (Welch, 1988), parents of "problem" children are particularly vulnerable to high degrees of stress due to the preponderance of their children's challenging behaviours (Mash, 1984). Parents of Attention-Deficit/Hyperactivity Disordered (ADHD) children are a prime example of such a population. These parents must cope with recurrent child misbehaviours which stem from the difficulty which children with ADHD have attending to and complying with requests (Cunningham & Barkley, 1979). Also, parents of children with ADHD often find themselves involved in resolving various school, peer, and sibling difficulties, which occur throughout childhood and into adolescence (Barkley, 1990). Additionally, up to 50% of children with ADHD have significant conduct problems (e.g., Oppositional Defiant Disorder (ODD); Szatmari, Boyle, & Offord, 1989) which present parents with even greater challenges than typical ADHD behaviours

(Anastopoulos et al., 1992; Barkley, Fischer, Edelbrock, & Smallish, 1991; Barkley, Anastopoulos, Guevremont, & Fletcher, 1992; Schachar & Wachsmuth, 1991). Thus, it is not surprising that parents of children with ADHD generally experience greater stress, depression, alcohol use and higher divorce rates than parents of non-ADHD children (Barkley, Fischer, Edelbrock, & Smallish, 1990, 1991; Befera & Barkley, 1985; Breen & Barkley, 1988; Cunningham, Benness, & Siegel, 1988; Mash & Johnston, 1983a).

When investigating parenting stress among parents of children with ADHD, it is essential to distinguish between the presence of typical ADHD behaviours (i.e., inattention, impulsivity and hyperactivity) and the frequently occurring comorbid condition of oppositionality (e.g., ODD or Conduct Disorder (CD)) (Fischer, 1990). For, although these two disruptive behaviour disorders often coexist, they must be conceptualized as being distinct because they have different etiologies, correlates and outcomes (see Hinshaw, 1987 for a review). For example, ADHD is understood to be a neurobiological disorder (Barkley, 1990, 1997) which is associated with developmental and learning problems (Szatmari, Boyle, & Offord, 1989; Szatmari, Offord, & Boyle, 1989) whereas ODD and CD are believed to arise from the combination of early negative child temperament (i.e., irritability, quickness to anger) and a negative family environment (Patterson et al., 1989). Indeed, unlike pure ADHD symptomatology, the presence of CD and/or ODD in ADHD children is associated with marital discord/violence, family dysfunction, and parental psychopathology (particularly maternal depression and paternal antisocial behaviour) (Barkley et al., 1991, 1992; Lahey, Piacentini, McBurnett, Stone, Hartdagen, & Hynd, 1988; Paternite, Loney, & Roberts, 1995; Reeves, Werry, Elkind, & Zametkin, 1987;

Schachar & Wachsmuth, 1991; Szatmari, Offord, & Boyle, 1989). Additionally, antisocial conduct is a strong predictor of adolescent substance abuse, expulsion from school, and later adult criminality; in contrast, these negative outcomes are not found at higher than normal rates among individuals evidencing only ADHD symptomatology (Barkley et al., 1990; Weiss & Hechtman, 1986). Thus, when studying parental adjustment, distinguishing between the separate influences of ADHD and ODD child behaviours is crucial to understanding the link between behaviour problems and increased parental difficulties. Unfortunately, this differentiation is rare, particularly among many earlier studies which identified greater distress among parents of ADHD children compared with parents of normal children (e.g., Befera & Barkley, 1985; Breen & Barkley, 1988; Cunningham et al., 1988; Mash & Johnston, 1983a).

Stress and Cognition

Decades ago, stress and coping researchers (e.g., Lazarus, 1966; Lazarus & Launier, 1978) introduced the idea that cognitions play a significant role in an individual's experience of a negative event. It is now generally accepted that "stress is in the eye of the beholder" with level of distress to an unpleasant external event (e.g., a traffic jam, an incident of child noncompliance) varying in accord with different interpretations of the event. Although research investigating the association between parenting stress and parenting cognitions is encouraged by many theorists and researchers (e.g., Mash & Johnston, 1990; Abidin, 1990), such studies are rare, possibly because these topics have often remained the separate domains of clinical and developmental psychologists, respectively.

Parenting stress research typically involves the identification of contributors to parental adjustment difficulties within a population of parents exposed to an inordinate amount of parenting challenges (e.g., parents of ADHD, autistic, or conduct disordered children). Factors such as child characteristics (e.g., severity of child behaviour problems), family environment characteristics (e.g., family dysfunction, sibling conflict, divorce), parent difficulties (e.g., presence of psychopathology, marital dissatisfaction), and psychosocial factors (e.g., socioeconomic status, availability and usage of social support) have been found to play a significant role in the prediction of parenting stress (Anastopoulos et al., 1992; Breen & Barkley, 1988; Cunningham et al., 1988; Konstantareas, 1991; Mash & Johnston, 1983a, 1983b; Webster-Stratton, 1989, 1990). In the only study of parenting stress which has taken into account both ADHD and ODD behaviours (Anastopoulos et al., 1992), higher parenting stress levels were found among parents of children displaying both ADHD and ODD compared with children evidencing only ADHD symptomatology (Anastopoulos et al., 1992). Other studies measuring "stressful life events" have not detected significant differences between these subgroups of parents however (Barkley et al., 1991; Johnston, 1996).

In contrast, investigations of parental cognitions have frequently focused on the relation between a variety of child- and self-focused thoughts and the presence of child psychopathology or parental reactions (e.g., affective and behavioural responses to child deviancy). While many different cognitions have been the subject of study, (a) inferences about children's behaviour and (b) parents' beliefs about their parenting ability have recently received particular attention (Grusec & Mammone, 1995).

The literature on parental inferences or attributions about children's behaviour encompasses several closely related cognitive variables including: intentionality, selfish motivation, blame, responsibility, controllability, locus, stability and globality. Regardless of the type of cognition measured, researchers generally find that parents of nonproblem children hold a "positive attributional bias" regarding their childrens' behaviours. Such parents view their children's desirable behaviour as due to stable personality factors and undesirable behaviour as reflective of environmental influences (Dix & Grusec, 1985; Dix, Ruble, Grusec, & Nixon, 1986; Gretarsson & Gelfand, 1988). In contrast, parents view their children in a more negative light when they have "difficult" children (Gretarsson & Gelfand, 1988), conduct disordered or aggressive children (Alexander, Waldron, Barton, & Mas, 1989; Baden & Howe, 1992; Compas, Adelman, Freundl, Nelson, & Taylor, 1982; Dix & Lochman, 1990), or learning disabled children (Pearl & Bryan, 1982). Moreover, a negative bias is also present when parents themselves are abusive (Larrance & Twentyman, 1983) or engaged in high degrees of conflict with their children (Grace, Kelley, & McCain, 1993) or with their spouses (Fincham & Grych, 1991). That is, instead of viewing their children as dispositionally good and excusing antisocial behaviours, problem-laden parents tend to blame their children when they fail and these parents attribute their childrens' misbehaviours to negative inborn characteristics and/or to malicious intent. Additionally, such negative attributions about children have been found to correlate with increased upset in parents and the use of power-assertive forms of discipline (e.g., Dix & Reinhold, 1991; Dix, Ruble, & Zambarano, 1989; Johnston & Patenaude, 1994; Scott & Dembo, 1993).

Parents' beliefs about their competence and effectiveness in the parenting role have been conceptualized in the parent cognition literature in several different ways (e.g., self-efficacy, self-blame, responsibility, attributions of control/power), and the relationship between these cognitions and child/parent psychopathology or parenting behaviours depends on the concepts measured. Abusive parents and parents of children with ADHD, learning or emotional problems are less likely to hold themselves responsible for their children's difficulties or for negative interactions than are members of non-problem families (Bradley & Peters, 1991; Himelstein, Graham, & Weiner, 1991; Johnston & Freeman, 1997). However, when parental self-blame/guilt is assessed, parents of withdrawn children are more inclined to blame themselves when their children display unskilled social behaviours than are parents of nonproblem children (Rubin & Mills, 1990). Additionally, abusive parents and parents of ADHD and CD children see themselves as much less able to bring about changes in their childrens' behaviour (Baden & Howe, 1992; Mash & Johnston, 1983a; Sobol, Ashbourne, Earn, & Cunningham, 1989). Also, parents who attribute little power to themselves during interactions with children are more likely to engage in abusive behaviours (e.g., biting, kicking, and beating) and coercive discipline (e.g., spanking, pushing, and slapping; Bugental, Blue, & Cruzcosa, 1989).

The current investigation brings together an appreciation of the many factors which contribute to parenting stress with a specific interest in the child- and parent-centred attributions studied by many parenting cognition researchers. Unfortunately, choosing specific parental cognitions for study is particularly challenging because, as researchers have tailored the ideas of various attribution theories to suit their purposes, considerable

differences in meaning have resulted. An attribution can be a cognition which explains an event ("explicit causal attribution"), describes an event ("descriptive attribution") or deals with individuals' accountability for an event ("responsibility attribution") (Fletcher & Fincham, 1991). For instance, if a child does not comply with her father's request, the parent might perceive his daughter's behaviour as being defiant (a descriptive attribution). If he then uses this attribution to explain why she misbehaved, rather than merely to describe her behaviour, he would make a causal attribution, such as "she misbehaved because she is stubborn". And, if the father blamed his daughter for her action, he would be making a responsibility attribution because he is making a judgment about accountability. Similarly, all three types of attributions can be made by the father regarding his own role in this parenting situation.

Added to this complexity are the numerous attributional dimensions including locus, controllability, globality and stability. Researchers tend to study subsets of these dimensions, and they occasionally investigate the dimensions in different ways. For example, controllability can be applied both to descriptive attributions (a child's behaviour may be viewed as being uncontrollable; that is, "running amok") and to causes of behaviours (the initiating cause of the child's behaviour (e.g., tiredness) may be perceived as uncontrollable). Additionally, while some researchers treat various attributions (such as intentionality, responsibility and blameworthiness) as highly related or interchangeable (e.g., Bradley & Peters, 1991; Grusec, Hastings, & Mammone, 1994), others view them as conceptually distinct (e.g., Bradbury & Fincham, 1990; Shaver & Drown, 1986).

Attributions of Control and Responsibility

The focus of the current research is on attributions of control (both descriptive and causal) and the related attributions of responsibility. These concepts were chosen because of their particular relevance to parent-child relationships involving children with ADHD. While all parents are faced with the task of determining the degree of control their children have over misbehaviours and ascribing responsibility in order to respond appropriately, parents of children with ADHD must make these determinations for children who have a behavioural control disorder. Thus, attributions of control and consequently responsibility must be made within a parenting context which is "characterized to an unusual degree by uncertainty, contradiction, [and] the unexpected" (Ross & Ross, 1982; p. 6). Additionally, the presence of ODD behaviours in a child with ADHD makes parents' attempts to interpret whether a child "can't" or "won't" comply even more confusing. While typical ADHD behaviours tend to be perceived by parents as being less controllable by children than are ODD behaviours (Johnston & Freeman, 1997; Johnston & Patenaude, 1994), if ADHD behaviours occur within the context of oppositional/aggressive behaviours, they are viewed as less controllable than if they occurred in purely hyperactive contexts (Johnston, Patenaude, & Inman, 1992).

Owing to the attribution theory of Weiner (1979, 1985, 1993), attributions of control and responsibility recently have received research attention within the parenting context (e.g., Bugental & Shennum, 1984; Johnston & Patenaude, 1994; Sobol et al., 1989). Weiner (1993) holds that perceiving an actor's deviant behaviour as caused by factors outside of his/her control (e.g., lack of ability) coincides with a low responsibility

attribution, and is hypothesized to lead to relatively positive reactions in observers. In contrast, controllable causes of deviant behaviour (e.g., lack of effort) result in the belief that the individual intentionally did wrong, eliciting anger from observers. The application of this model to child-parent relations is obvious -- parents who view their child's misbehaviours as stemming from controllable causes should tend to experience upset and distress, whereas those perceiving their child as misbehaving due to uncontrollable factors should be more likely to feel sympathetic and supportive.

Attributions of personal control are also relevant to emotional states, as well as to psychological and physical health (Anderson & Arnoult, 1985; Peterson, Maier, & Seligman, 1993; Shapiro, Schwartz, & Astin, 1996). For example, low perceived control has been identified as a key feature of individuals entering psychotherapy (Shapiro, Bates, Greensang, & Carrere, 1991) and has been linked to lower rates of survival among cancer patients (Greer, 1991). The concept of learned helplessness emphasizes the role of self-attributions of low control in emotional well-being. This theory maintains that individuals who have a "pessimistic explanatory style" perceive aversive events as being beyond their personal control. Individuals who hold such beliefs, and are repeatedly exposed to negative events can experience helplessness and the associated symptoms of passivity, sadness, anxiety and hostility. Thus, within the context of parenting, one would predict that parents who perceive an incident of misbehaviour as being beyond their own control will experience not only greater distress (an immediate emotional response) than parents who believe that they have control over the noncompliance situation, but if this attributional

style is habitually used, more global adjustment problems, such as negative feelings about being a parent, may result.

Summary of Controllability and Responsibility Attribution Studies

As many of the studies examining controllability and responsibility attributions have been cited earlier in this paper, only selected findings regarding the association between these parent attributions and parent distress/maladjustment will be discussed here as they are most pertinent to the present research. A review of these studies is presented in Table 1.

Table 1

Investigations of the Association between Parent Attributions of Control/Responsibility and Parent Distress/Maladjustment

Study	Measure of Attributions	Association with Distress /Maladjustment
Bugental, Blue, Cruzcosa (1989) (written scenario - PAT)	How important do you believe the following factors would be as reasons for you and your neighbour's child not getting along? CC: causes which are uncontrollable/controllable by child PC: causes which are uncontrollable/controllable by parent (perceived balance of control)	high CC + low PC - high use of coercive behaviour & abusive behaviour with own child
Bugental (1995) (written scenario - PAT)	CC: same as above PC: same as above	high CC + low PC - high stress in daily life
Dix, Ruble, Grusec, & Nixon (Study 1, 1986) (written scenarios)	CC: how important was lack of self-control as a cause for the child's misdeed? (the ability to control one's impulses)	low CC - high upset
Dix, Ruble, Grusec, & Nixon (Study 2, 1986) (written scenarios)	CC: no control, the child could not help but act that way/ complete control over acting that way	high CC - high upset

Table 1 (continued)

Study	Measure of Attributions	Association with Distress /Maladjustment
Dix, Ruble & Zambarano (1989) (written scenarios)	CR: how much blame does your child deserve for acting like this? (no blame/complete blame)	high CR - high upset; greater punishment
Dix & Lochman (1990) (videotaped stimuli)	CR: the extent to which the child should be held responsible for the misdeed (not at fault/ completely at fault)	high CR - high upset
	PR: how much do you think the mother was responsible for the child's behaviour (not at all at fault/completely at fault)	high PR - low upset
Dix & Reinhold (1991) (videotaped stimuli)	CR: the extent to which child should be held responsible for or deserves blame for the disobedience (no blame/complete blame)	high CR - high upset; high disapproval
Geller & Johnston (1992) (written scenarios)	CC: extent to which the cause of your child's behaviour was controllable by him/her	high CC (+ internal) - high upset/do some-about the behaviour
	PC: extent to which the cause of your child's behaviour was controllable by you (the parent)	high PC - high upset/ do something about the behaviour
Geller & Johnston (1995) (written scenarios)	CC: extent to which the negative experience was caused by something not at all under your child's control/completely under your child's control	high CC (+ internal) - high negative emotional reaction
Johnston & Patenaude (1994) (written scenarios)	CC: extent to which you think your child's actions are within his control (not at all within his control/completely within his control)	high CC - high upset high CC - low parenting efficacy
Scott & Dembo (1993) (written scenarios)	CC: extent to which your child's response was controlled and deliberate (wilful)	high CC - high upset; use of spanking

Note. CC = child control; PC = parent control;
CR = child responsibility; PR = parent responsibility

Parent Control and Responsibility. Using the Parent Attribution Test, a measure of parents' causal *control* attributions, Bugental and her associates have discovered that parents who perceive themselves as ineffectual fare worse than those who believe that they have some control over negative caregiving outcomes. In Bugental et al.'s (1989) investigation of mothers who were receiving counselling at a child abuse agency, the combined beliefs of low personal control and high child control predicted mothers' tendency to abuse or to use coercive disciplinary tactics with their children. Additionally, mothers with this low personal control/power attributional style have been found to respond to "difficult children" (i.e., experimental confederates or computer simulated children) with a less assertive communication style (Bugental & Shennum, 1984), more negative ideation, more negative affect, and higher autonomic reactivity than when interacting with "easy children" (Bugental, Blue, Cortez, Fleck, Kopeikin, Lewis, & Lyon, 1993; Lewis, Bugental, & Fleck, 1991). In contrast, mothers with high personal control beliefs tend not to display marked differences in their interaction styles or affective responses to difficult and easy children. Also, mothers who perceive themselves as having less control than children report significantly higher levels of stress in their daily lives than do mothers with high personal control attributions (Bugental, 1995).

While a tendency for parents to take credit for their children's successes and deny *responsibility* for their failures has been frequently reported in the literature as a "hedonic bias" (e.g., Himelstein, et al., 1991; Johnston & Freeman, 1997), few researchers have investigated the emotional adjustment of parents with high and low self-responsibility attributional styles. Based on the hedonic bias findings one might assume that low

responsibility attributions protect a parent's self-esteem during incidents of child noncompliance; however, this attributional style may also contribute to feelings of futility or lack of control as a parent. Indeed, self-perceptions of responsibility and controllability may simply be two sides of the same coin, as Weiner (1993) suggested in his discussion of attributions made about another's behaviour. Or, as Shapiro et al. (1996) propose, beliefs about one's own responsibility for an event may be a specific subtype of personal control cognitions. It is likely, however, that the relationship between these two concepts is more complex than a simple positive association. While it is plausible that parents who view themselves as having little control over their child's misbehaviours would feel that they cannot be held responsible for specific behaviour problems, the fact that parental influence begins at a child's birth may cause parents to feel "ultimately responsible" for their child's behaviour. Thus, parents may acknowledge that many factors led to a specific incident of child misbehaviour and that they are only somewhat responsible for the act, and yet, they assume ultimate responsibility for how their child "turned out", believing that their ineffectiveness as a parent is the deeper reason for the behaviour problem.

The importance of the distinction between attributions of control and responsibility, and the effect of such responsibility attributions on parenting stress has not been addressed empirically. Dix and Lochman (1990) did however, investigate parents' responsibility attributions during videotaped vignettes of mother-son interactions. They found that the more inclined subjects were to rate the enacted parent as being responsible for the child's misbehaviour, the less upset they were with the portrayed child for acting as he did. Since

this study involved responding to stimuli as a "third person", it is difficult to know how the subjects' reactions might have generalized to interactions with their own children.

Child Control and Responsibility. The research on parent attributions of child *control* is even more convoluted than it is for parent self-attributions. As is shown in Table 1, child control is conceptualized and measured in many different ways across studies and the associations with parent distress/maladjustment occur in both directions. Most often, investigators have found that parents who report that their children possess high levels of control over misbehaviours (both causal and descriptive attributions) tend to report greater distress (Bugental et al., 1989; Geller & Johnston, 1992, 1995; Johnston & Patenaude, 1994; Scott & Dembo, 1993). That is, perceiving one's child as misbehaving "wilfully" or "intentionally" is associated with feelings of upset and a sense of poor parenting ability. In marked contrast, however, Dix et al. (1986, Study 1) reported that the more parents viewed child misconduct as caused by a lack of personal control, the greater was their experience of parenting distress. In contrast to the majority of studies, Dix et al.'s results suggest that seeing one's child as a victim, rather than a "perpetrator" of his/her uncontrollable impulses is related to greater upset in parents.

Dix and his associates frequently include measures of child *responsibility* in their studies of parent attributions. Whether parents are exposed to written scenarios or videotaped incidents of child misconduct, believing that the offending child is responsible for misbehaving has been found to be correlated with parental reports of more upset, more sternness and the use of more severe forms of punishment (Dix & Reinhold, 1991; Dix et al., 1989; Dix & Lochman, 1990).

Current Study

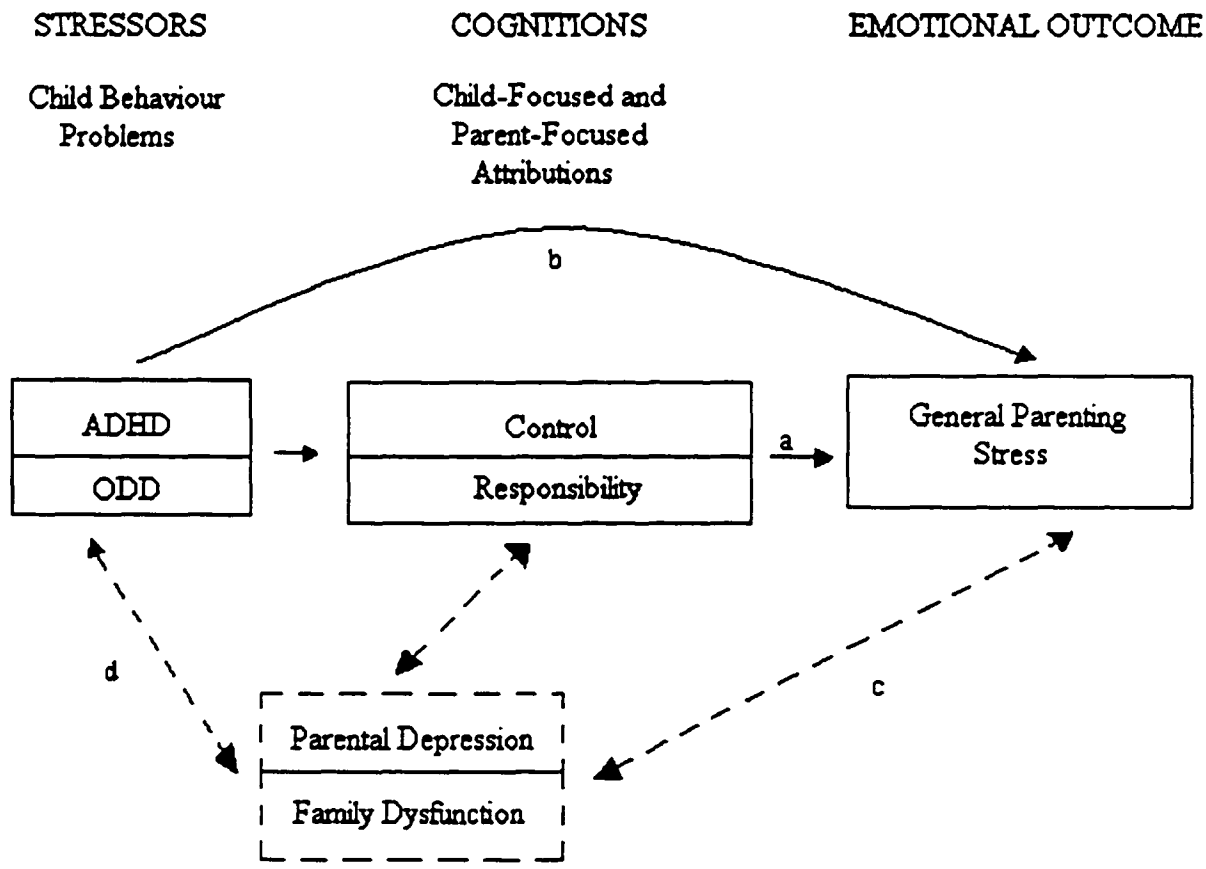
As has been illustrated, a number of questions about the relation between parent attributions of control/responsibility and parenting distress remain unanswered, particularly among parents of children with ADHD. This study seeks to address some of these questions by (a) distinguishing between parents' descriptive control, causal control and responsibility attributions in response to stressful child misbehaviours, and (b) assessing both parents' self-perceptions and perceptions about their children.

The model which guides this research is presented in Figure 1. The model reflects ideas from several theorists including Bugental (1987) and Weiner (1993), as well as the underlying assumption of most forms of cognitive behavioural therapy that the interpretation of a negative event determines one's affective experience of the event (e.g., Ellis, 1962). The three main variables in the model are stressors impacting on the parents (i.e., the challenging child behaviours of ADHD and ODD), parental cognitions (controllability and responsibility attributions in relation to the child and the parent him/herself) and the emotional outcome of parenting stress. In the proposed model, parent attributions act as intervening variables between child behaviour problems and parenting stress.[1] While the testing of causal relationships is beyond the scope of this investigation, it is assumed that child behaviour problems precede parent attributions regarding these

[1]Attribution variables may function as moderators as proposed in Bugental's (1987) model, indicating that at high levels of parent attributions, the relationship between child symptomatology and parenting stress is different than at low levels of parent attributions. Or, attribution variables may exert a direct effect on parenting stress when levels of child symptomatology are controlled. The model does not specify the precise nature of the attribution variables' intervening role.

Figure 1

The Model Guiding Studies One and Two



Note. The dotted line around parental depression and family dysfunction signifies that these variables are of secondary importance to the model.

behaviours. And, control and responsibility attributions lead to emotional reactions which, in time, are reflected in a general sense of parenting stress.

A fourth variable, parental depression[2], is included in the model because of the influential role which parental mood can have on reports of child behaviour problems, attributions and parenting stress. Indeed, studies have shown that higher depression levels in parents are related to more severe child behaviour problem ratings (Johnston & Short, 1993; Fergusson, Lynskey, & Horwood, 1993; Griest, Wells, & Forehand, 1979; Johnston, 1991; Schaughency & Lahey, 1985), and, measures of depression have been found to correlate highly with parenting stress indices (Breen & Barkley, 1988). Also, as cognitive psychotherapists and learned helplessness researchers assert, once depressed, individuals' attributions about their ability to influence the present or future are greatly affected (Beck, 1967; Peterson et al., 1993). Thus, in order to assess the association between the key variables, and to address the possibility raised by some researchers (e.g., Baden & Howe, 1992; Joiner & Wagner, 1996) that the attribution-adjustment relationship may be an artifact of depression, parental depressed mood was controlled.

Parental depression is also viewed as an alternate index of parental adjustment in the model, which has particular relevance to families of ADHD and ODD children. Indeed, there is growing evidence of a stronger relationship between parental depression and ODD, as opposed to ADHD symptomatology in children (e.g., Barkley et al., 1991).

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[2]While the model includes the multifaceted construct of parental depression, only the affective component of depression was measured because of its salience and the fact that assessing all forms of depressive symptomatology (e.g., somatic, relational, cognitive) was viewed as impractical, given the method of data collection, and unnecessary, given the secondary role afforded to depression in the model.

Additionally, family dysfunction appears in the model due to the frequently reported relationship between a disturbed family environment and child oppositionality (e.g., Paternite et al., 1995; Schachar & Wachsmuth, 1991; Szatmari, Offord, & Boyle, 1989) and the occasionally reported association between negative family interactions and ADHD symptomatology (Barkley et al., 1992). Family dysfunction is conceptualized as a more global index of parental adjustment than parenting stress and parental depressed mood.

In Figure 1, the associations between the variables are represented by solid or dotted lines. Solid lines between the key variables (child behaviour problems, parental cognitions and parenting stress) indicate unidirectional relationships as suggested by other theorists (e.g., Bugental, 1987; Ellis, 1962). The dotted lines linking the secondary variables of parental depression and family dysfunction with the other variables signify relationships which may be unidirectional or bidirectional; as the directionality of these associations is not central to the investigation, specific assumptions are not made or tested. The primary focus of this research is on the link between attributions and parenting stress (labeled "a") when paths "b" and "c" are controlled or taken into account. The links between child behaviour symptomatology (both ADHD and ODD) and parental adjustment problems (parenting stress, depressed mood and family dysfunction) are explored as a secondary focus, and are represented by the paths "b" and "d" on the diagram. By distinguishing between these two categories of child behaviour problems, their separate and combined effects on parental adjustment can be analyzed.

The model is not intended to be a complete representation of the factors which influence parent attributions and parenting stress. Clearly, innumerable intra- and extra-

familial variables, some of which have been identified by other theorists and researchers (e.g., marital distress, child health status, parent psychopathology (other than depression), job stress), exist and have not been included in the model. Instead, a simplified model is proposed in order to provide a basic framework in which to test the role played by a variety of parent cognitions.

Summary

In summary, while previous research has demonstrated that parenting stress is a significant problem for families with children displaying ADHD behaviours, the general neglect of cognitive variables in parenting stress research has resulted in an incomplete understanding of the factors which influence parents' stress levels. The current study attempts to address this gap in the literature by focusing on parents' perceptions of control and responsibility, factors known or presumed to be associated with emotional well-being and relevant to the behavioural control disorder of ADHD. Unlike much of the previous research, this study examines the influence of parents' self- and child-focused control attributions on parenting stress. Also, this work focuses on the "larger picture" of parenting experiences by examining the association between attributional styles and a general measure of parental adjustment (parenting stress), rather than the typically-used ratings of emotional reactions to specific scenarios. Lastly, unlike much of the literature, particular attention is paid to determining the separate and combined effects of ADHD and ODD symptomatology on parenting stress.

Two studies were conducted to investigate the relationship between control/responsibility attributions and parenting stress. The first study was a preliminary

investigation of the association between child- and parent-focused control and parental adjustment problems within a community sample of parents with children displaying predominantly ADHD and ODD behaviours. The second study attempted to clarify and extend the findings of the first, primarily by utilizing a refined approach to the measurement of parents' attributions. Both studies were designed to detect differences in the levels of parental adjustment difficulties reported by parents whose children display various combinations of ADHD and ODD symptomatology.

Study 1

This study examined the contributions of child behaviour problems (ADHD and ODD symptomatology), family dysfunction, parental depressed mood and parent attributions of control (measured as a descriptive attribution) to parenting stress in a community sample of parents with children displaying various degrees of disruptive behaviour problems. The chief aim of the study was to determine whether this type of self- and child-focused control beliefs would play a significant role in the prediction of parenting stress beyond the influence of the other variables. A secondary focus of this study involved efforts to replicate and extend previous findings regarding adjustment difficulties among families with children displaying typical ADHD behaviours and the frequently occurring concomitant of oppositionality (e.g., Anastopoulos et al., 1992).

This study employed a large community sample, as opposed to a clinic-referred sample, because such studies are conspicuously absent in the literature. Given that only 17% to 20.5% of children with ADHD use mental health or social services (Szatmari, Offord, & Boyle, 1989), it is clear that our understanding of ADHD and parental adjustment needs to be broadened beyond the small segment of the population ordinarily studied by researchers.

The first part of this two-part study documented the differences between parents of children displaying typical ADHD behaviours versus oppositional/defiant behaviours. It was hypothesized that parent adjustment problems would be differentially related to the type of behaviour difficulties displayed by their children, with ODD behaviours being more strongly associated with parent difficulties than ADHD behaviours (as found by

Anastopoulos et al., 1992; Barkley et al., 1991, 1992). The second part focused on the relationship between parenting stress and cognitions. Three outcomes were expected. (1) Parenting stress, coping and parental depressed mood would be related to parents' self- and child-centred attributions. Specifically, greater parental adjustment problems would be associated with a belief that one is unable to control child misbehaviours (low parent control). While it was expected that worse parental adjustment would be related to perceptions of high child control, no formal prediction regarding the direction of this relationship was made because of the mixed findings in the literature. (2) Parents' self- and child-focused attributions would predict parenting stress beyond the influence of child behaviour problems, family dysfunction and parental depressed mood. (3) Control attributions would moderate the relationship between child symptomatology and parenting stress, such that the relationship between these variables would be particularly strong for parents with perceptions of low control over their children's behaviour.

Method

Participants

The study's participants were 234 parents (75% mothers and 25% fathers) who attended one of six community presentations on ADHD in the Hamilton, Ontario area between December 1992 and June 1993. Ninety percent of the subjects were married or living with a partner.

The participants' children had a mean age of 9.8 years (age range of 4 to 17 years; SD = 3.18) and were mostly boys (85% boys; 15% girls). Eighty-three percent of the children had been diagnosed with ADHD according to their parents' reports (this includes

"ADHD", "mild ADHD", "ADHD and other disorders"), 4% had been diagnosed with other disorders (e.g., communication disorders, learning disabilities), and 13% of respondents' children had had no diagnosis given to them. Twenty-eight percent of the participants indicated that they had previously attended parenting training or support programs. The participants' average rated knowledge of ADHD on a 7-point scale (1 = no knowledge at all; 7 = extremely well informed) was 3.9 (SD = 1.56).

Measures

Parent Attributions. Parents' child- and self-focused (descriptive) attributions of control were measured using the Parent Perception Questionnaire, Form 1 (see Appendix A), a measure developed for use in this study. Parents read three vignettes, each reflecting one of the three aspects of ADHD (i.e., hyperactivity, inattention, impulsivity) and imagined that the child who did not comply with the parental directive in each of the scenarios was their own. These scenarios were worded in such a way as to present the causes of the child's misbehaviours in an unclear light. Many theorists and investigators have suggested that beliefs about control have their greatest influence in guiding one's interpretation of the environment (or of a child's behaviour) when individuals are presented with ambiguous information (e.g., Larrance & Twentyman, 1983; Lazarus & Folkman, 1984; Wong & Weiner, 1981). Participants then rated their attributions regarding the misbehaviour on the dimensions of *child control* (ranging from my child had (1) "no control at all over this behaviour" to (7) "total control over this behaviour"), and also on *parent control* (ranging from parent had (1) "no control at all over behaviour" to (7) "total control over this behaviour"). The three scenarios were presented in a randomized order,

and total child control and parent control scores were calculated by summing the ratings across the three scenarios (allowing total scores to range from 3 to 21). This analogue method of measuring attributions is quite common among attribution researchers and has proven to be sensitive to differences in parent perceptions (e.g., Dix & Grusec, 1985; Grusec et al., 1994; Johnston & Patenaude, 1994) and to produce results similar to more realistic methodologies (Johnston & Freeman, 1997).

Child Behaviour.[3] The ADHD and ODD subscales of the Revised Ontario Child Health Study questionnaire were used to measure challenging child behaviours (Boyle, Offord, Racine, Fleming, Szatmari, Sanford, 1993; see Appendix B). The ADHD subscale consists of 14 items such as "fidgets" and "has difficulty following directions". Example items of the 9-item ODD subscale include "argues a lot with adults" and "angry and resentful". On these subscales, respondents indicate how well each of the statements describes their child by checking one of three columns: "never or not true", "sometimes or somewhat true", or "often or very true". These subscales directly reflect the symptoms required to make diagnoses using the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987). Both the ADHD and ODD subscales revealed good reliability and validity in a large scale epidemiological study of over 1000 subjects (Boyle et al., 1993).

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[3]It should be noted that parents' ratings of child behaviour problems did not provide an actual diagnosis of ADHD or ODD, but rather, behaviour ratings were used to identify children who presented ADHD and ODD problems to their parents. Nevertheless, within the medical tradition, there is a strong reliance on parental reports. And, diagnoses based solely upon parent ratings have been found to be predict teacher-based diagnoses 90% of the time (Biederman, Keenan, & Faraone, 1990).

Parental Adjustment. *Parenting stress* and *parental coping* were measured using two single item, 7-point likert-type ratings (i.e., "In general, how stressful has being a parent of a "behaviourally challenging" child been for you?" and "How well do you feel you have coped with the stress of raising your child?"). Additionally, parents' level of *depressed mood* was measured using the Centre for Epidemiological Studies' Depression Scale (CESD; Radloff, 1977), a 20-item instrument which is commonly used to measure the affective component of depression among nonclinical samples. The CESD is shown in Appendix C. Lastly, *family dysfunction* was assessed using the Family Assessment Device (FAD), short version, a 12-item measure of how well the family unit works together on essential tasks (see Appendix D). It has proven sensitive to differences in families of children with ADHD versus ADHD/ODD in the Ontario Child Health Study (Szatmari, Offord, & Boyle, 1989). It originated as the General Functioning Scale of the longer FAD which taps the six dimensions of problem solving, communication, roles, affective responsiveness, affective involvement and behaviour control. Items include "we are able to make decisions about how to solve problems" and "we cannot talk to each other about the sadness we feel", and responses are rated "strongly agree", "agree", "disagree", or "strongly disagree". In an epidemiological study of 1869 Ontario families, the short form of the FAD showed good internal consistency (Cronbach's alpha = .86) and construct validity (Byles, Byrne, Boyle, & Offord, 1988).

Procedure

Parents attending an evening community presentation on ADHD given by a local expert on the topic were asked to participate in the study. Participants were informed that

the study was aimed at gaining a better understanding of the stresses and strains experienced by parents of children with behaviour problems, and the ways in which parents attempt to make sense of such difficulties. Parents were encouraged to complete the questionnaires prior to the beginning of the presentations in order to avoid the possibility that their ratings might be affected by the information given during the presentation.

Results

Descriptive Information

Prior to addressing the research questions, some preliminary, descriptive statistics were calculated. First, internal consistency coefficients (Cronbach's alpha) were calculated for the two attribution variables, which consisted of three ratings corresponding to the three scenarios. Reliability estimates for both variables were clearly within the acceptable range -- .76 for child control and .77 for parent control.

Table 2 displays the means and standard deviations of the attribution, child behaviour and adjustment variables. These descriptive statistics provide information about potentially unique features of the sample. The average rating of child behaviour symptoms (both ADHD and ODD) reported by this study's parents was more than 2 standard deviations above the means reported in Boyle et al.'s (1993) epidemiological study of over 800 parents in the Hamilton, Ontario area. Additionally, the mean CESD rating of 13.78 is slightly higher than that which would be expected in a community sample (see Radloff, 1977), although this score is similar to that of community groups faced with a large number of life stressors, such as single mothers (Krech & Johnston, 1992). The average FAD score is slightly worse (.5 standard deviations) than that of other community samples

(see Byles et al., 1988). Thus, this community sample of parents had children with significant levels of behaviour problems, and had slightly greater degrees of depressed mood and family dysfunction in comparison with more typical community samples.

Table 2

Descriptive Statistics of Attribution, Child Behaviour and Parent Adjustment Variables

Variable	Mean	Z-score	SD	N
Child Control	11.25		3.49	219
Parent Control	10.03		3.25	217
ADHD Behaviour	19.77	2.09	4.85	229
ODD Behaviour	11.05	2.04	4.33	228
CESD	13.78	.53	11.49	218
FAD	1.96	.48	.47	221
Stress	5.44		1.41	232
Coping	3.61		1.53	232

Note. Lower CESD, Stress, Coping and FAD scores indicate better functioning. Lower child and parent control scores indicate lower levels of control.

Comparisons of Parents of Children with Various Behaviour Problems

In order to address the first question regarding the adjustment difficulties of parents with children displaying various behaviour problems, the participants were divided into four groups reflecting different types of behaviour problems -- parents of children

displaying (a) mainly ADHD behaviours ("pure ADHD" group), (b) mainly ODD behaviours ("pure ODD" group), (c) both ADHD and ODD symptomatology, ("combined" group), and (d) low levels of both behaviour problems ("comparison" group). In order to be included in either of the "pure" behaviour categories, child behaviour scores had to be greater than 2.0 standard deviations above the mean of Boyle et al.'s (1993) community sample on only one of the behaviour types. Parent ratings were required to be above this threshold on both ADHD and ODD symptomatology to be included in the combined group, whereas ratings needed to be below the threshold on both behaviour types to be classified in the comparison group. Refer to Table 3 for the number of subjects which fell into each group.

Several analyses (one-way Analyses of Variance (ANOVA) and Chi-Squares) were conducted to determine if the four child behaviour subgroups differed on any demographic variables (see Table 3). These analyses revealed that the four groups did not differ significantly in terms of the gender of the children, reporting parent's gender, parents' rated knowledge of ADHD, or marital status (i.e., married or single). Differences were detected, however, in child age ($F(3,217) = 3.86$, $p < .01$) and the amount of previous parent training/support groups that had been attended (χ^2 (3, $N = 221$) $= 12.41$, $p < .001$), indicating that group membership was not independent of child age or previous parent training. Follow-up analyses revealed that the children categorized as having only ODD problems were significantly older ($M = 11.03$, $SD = 3.13$) than those in the pure ADHD group ($M = 8.48$, $SD = 2.46$). Additionally, parents' utilization of parent training programs ranged from 16% (comparison group) to 41% (combined group). This

lack of independence proved not to be problematic, however, as the results of subsequent analyses were the same with child age and parent-training group attendance included or covaried out.

Table 3

Demographics of the Four Child Behaviour Subgroups

Variable	Child Behaviour Subgroup			
	Comparison (n = 71)	**Pure ADHD** (n = 31)	**Pure ODD** (n = 35)	**Combined** (n = 84)
% Male Children	85.9	77.4	91.4	85.7
% Mothers	67.6	82.8	75.8	77.4
% Single	8.2	16.7	5.7	11.6
% Parent Training*	16.4	32.3	20.6	40.5
Child age* (M)	9.53 (3.18)	8.48 (2.46)	11.03 (3.13)	9.84 (3.10)
Knowledge of ADHD (M)	3.69 (1.63)	3.69 (1.67)	3.64 (1.60)	4.21 (1.44)
ADHD (M)	15.05 (3.11)	22.95 (2.29)	16.76 (1.20)	23.97 (2.27)
ODD (M)	6.79 (2.65)	8.00 (2.27)	13.87 (2.27)	14.63 (2.25)

*$p < .01$.

Group differences on the three parent adjustment variables[4] and the family functioning scale were initially assessed using a multivariate analysis of variance

[4]Because CESD scores violated the homogeneity of variance assumption of MANOVA tests (as indicated by large differences in variance across the four child behaviour groups and by homogeneity of variance tests), this variable was transformed using a logarithmic function. Subsequent analyses of the CESD were also conducted on the transformed data.

(MANOVA) with ADHD (low versus high) and ODD (low versus high) symptomatology as the two between-subject factors. This analysis revealed significant main effects for ADHD behaviours ($F(4,193) = 2.69$, $p < .05$) and particularly, for ODD behaviours ($F(4,193) = 5.31$, $p < .001$). The interaction between the two child behaviour factors was not significant ($F(4,193) = 2.11$, $p > .05$). Follow-up two-way ANOVAs were then calculated for each dependent variable, and, when appropriate, pairwise contrasts were made using Tukey HSD tests (summarized in Table 4).

Parenting Stress. For the parenting stress measure, the 2 x 2 ANOVA yielded significant main effects for both child behaviour factors (ADHD: $F(1,196) = 10.49$, $p < .001$; ODD: $F(1,196) = 11.69$, $p < .001$) indicating that parents with children displaying higher levels of ADHD and ODD behaviours reported greater stress than parents of children with lower levels of ADHD and ODD. The interaction effect was not significant. Tukey HSD tests demonstrated that while parents with children in all three behaviour problem groups (pure ADHD, pure ODD, and combined) reported significantly more stress than parents of comparison group children, these groups did not differ from one another.

Family Functioning. The analysis of the FAD revealed a significant ODD main effect ($F(1,196) = 12.41$, $p < .001$) and a significant ADHD by ODD interaction ($F(1,196) = 8.17$, $p < .005$). An ADHD main effect was not detected. Follow-up Tukey HSD tests indicated that parents of children in all three behaviour problem groups reported significantly greater family dysfunction than those of comparison group children, although the three groups did not differ significantly from one another.

Table 4

Mean Stress, Family Dysfunction, and Depressed Mood Scores of Parents with Children in the Four Behaviour Groups

	Child Behaviour Subgroup				
Adjustment Variable	**1 Comparison** (n = 69)	**2 Pure ADHD** (n = 27)	**3 Pure ODD** (n = 27)	**4 Combined** (n = 77)	**p < .05**
Stress	4.58 (1.42)	5.48 (1.16)	5.52 (1.40)	5.96 (1.19)	1 < 2, 3, 4
FAD	20.95 (5.25)	23.94 (5.58)	26.11 (4.99)	24.51 (4.67)	1 < 2, 3, 4
CESD[a]	9.85 (9.09) [3.35 (.28)]	12.30 (8.79) [3.43 (.26)]	16.58 (14.42) [3.54 (.37)]	16.17 (12.10) [3.52 (.31)]	1 < 3, 4

Note. Tukey HSD tests used to detect differences between means.
[a]means and standard deviations for the log transformed CESD variable are in brackets.

Depressed Mood. The two-way ANOVA on the CESD revealed only a significant ODD main effect ($F(1,196) = 8.62$, $p < .005$)[5], indicating that parents of children displaying ODD behaviours reported more depressed mood than parents of non-ODD children. Tukey tests revealed that parents of children categorized as being either pure ODD or ADHD/ODD reported significantly higher levels of depressed mood than parents of children in the comparison group.

[5]F-value for the log transformed data.

Parent Coping. No significant effects were found for the coping variable using the ANOVA procedure, although the ODD main effect approached significance ($F(1,196) = 3.60$, $p = .06$).

Relationship between Parent Attributions and Adjustment

The second question addressed the strength of association (Pearson r) between attributions of control and adjustment indices. As is shown in Table 5, child control and parent control were found to correlate significantly with two of the three parental adjustment measures (i.e., stress and coping, but not CESD). Contrary to the expectation that parenting stress would be associated with the belief that one's child is in control of his/her deviant behaviour (i.e., an attribution of high child control), in this study, parents who perceived their children to have less control over misbehaviours experienced higher levels of parenting stress ($r = -.23$, $p < .001$) and lower levels of coping ($r = -.20$, $p < .005$). However, as expected, parents who believed that they themselves had little control over their children's misbehaviours reported more stress ($r = -.42$, $p < .001$) and poorer coping ($r = -.23$, $p < .001$).

Table 5

Correlations between Parent Attributions and Adjustment Measures

Attribution Variable	CESD	Stress	Coping
Child Control	-.11	-.23**	-.20*
Parent Control	-.11	-.42**	-.23**

*$p < .005$. **$p < .001$.

Control Attributions in the Prediction of Parent Adjustment

In order to address the third issue with respect to the collective impact of the investigated variables on parental adjustment, hierarchical multiple regression equations were calculated for parenting stress and parental coping. Initially, child behaviour problems were controlled by forcing both ADHD and ODD status scores ($r = .56$, $p < .001$) into each equation on the first step. Secondly, the FAD variable was entered to determine if Cunningham et al.'s (1988) finding, that family dysfunction predicted distress, could be replicated. Next, CESD was added to the equations to control for its contribution to the criterion variables which might be shared with the attribution predictors. Lastly, the two attribution variables, child control and parent control, were entered into the regression equations. The attribution variables were entered simultaneously because the moderately strong correlation between these variables ($r = .43$, $p < .001$) would allow more variance to be accounted for by the first variable entered, a choice of which could not be theoretically justified. The results of these multiple regression analyses are shown in Table 6.

At the initial step, both ADHD and ODD behaviours contributed unique variance to parenting stress. In fact, both child behaviour variables also accounted for significant proportions of parenting stress variance at the final step, when all variables were included in the equation (ADHD: $\beta = .14$, $p < .05$; ODD: $\beta = .21$, $p < .01$). In contrast, while ODD initially contributed significant variance to parental coping ($\beta = .24$, $p < .01$), this effect was eliminated when all variables had been entered into the regression equation ($\beta = .10$, $p = .24$). ADHD behaviours did not predict parental coping scores.

Table 6

Multiple Regression Analyses Predicting Parental Adjustment from Child Behaviour Problems, Family Dysfunction, Parent Depressed Mood and Control Attributions

Criterion	Predictor	Cumulative R^2	Increase R^2	F-test	ß[a]
Stress	ADHD	.25	.25	30.65***	.14*
	ODD				.21**
	FAD	.28	.03	7.10**	.02
	CESD	.36	.08	23.43***	.32***
	Child Control	.42	.06	9.23***	-.04
	Parent Control				-.26***
Coping	ADHD	.07	.07	7.02***	-.02
	ODD				.10
	FAD	.18	.11	24.42***	.26***
	CESD	.25	.07	17.99***	.29***
	Child Control	.27	.01	1.28	-.11
	Parent Control				-.00

[a]beta weights at the final step, when all other variables have been entered into the regression equations, are presented.
*$p < .05$. **$p < .01$. ***$p < .005$.

The FAD significantly contributed to parenting stress and coping beyond the impact of child behaviour problems, indicating that once ADHD and ODD symptomatology were controlled, poor family functioning accounted for another 3% (ß = .18, $p < .01$) of the

variance in parent stress scores and 11% (β = .36, p < .0001) of the variance in parent coping ratings.

The final covariate, CESD also proved to be a significant predictor, accounting for 8% of the variance in parenting stress (β = .31, p < .0001) and 7% of the variance in parent coping (β = .29, p < .0001). That is, higher depressed mood scores accounted for a unique amount of variance in parenting stress and coping after the variance associated with child behaviour problems and family dysfunction was controlled.

At the final step, when parent attributions of personal control and child control were entered into the regression equation, this block was found to account for a significant proportion of the variance of parental stress (6%, β = -.29, p < .0005) beyond the contributions already made by child behaviour problems, family dysfunction and parental depressed mood. Upon further examination of the relative contributions of the child and personal control variables within the block, it was found that only the parent control variable contributed unique variance to parenting stress (β = -.26, p < .0005). Thus, parenting stress was predicted by parents' belief that they had little ability to control their children's misbehaviours. At this final step of the analysis, the variables collectively had accounted for 42% of the variance in parenting stress. In contrast, when parent coping was used as the criterion, the attribution variables did not predict adjustment beyond the contributions made by the covariates.

Control Attributions as Moderating Variables

A variety of hierarchical multiple regression analyses were performed using parenting stress, coping and depressed mood as the dependent variables in order to test for

the study's fourth concern with the moderating effects of child and parent control attributions. Each time, child behaviour scores[6] (either ODD or ADHD) were entered into the equation first, then either the main effect of the child control or the parent control variable was entered second. On the third step, the interaction between the child behaviour and attribution variable was entered. As indicated by Baron and Kenny (1986), it is the addition of the product term on the third step which provides the test of the moderating effect of the attribution variable.

The two multiple regression analyses which yielded significant moderating effects are displayed in Table 7. First, the child control attribution score was found to moderate the relationship between ODD behaviour and parental stress ($\underline{b} = .19$, $\underline{p} < .05$)[7], indicating that at higher levels of ODD behaviour, both low and high child control attributions yielded high stress scores; however, at low levels of ODD, parents who believed their children have much control over misbehaviours experienced less stress than parents who perceived their children as having little control over their misbehaviours (see Figure 2). This finding was contrary to our expectation that lower stress levels would derive from the perception that the child "could not help him/herself" in the misbehaviour. Secondly, parent control was found to have a moderating influence on the relationship between ODD behaviour and parental stress in the hypothesized direction ($\underline{b} = .18$, $\underline{p} <$

[6]In the moderator analyses, all variables were standardized prior to entry into the regression equations to reduce the problematic high correlations between first order and product terms (Aiken & West, 1991).

[7]The unstandardized regression coefficient (b) is presented because the interaction term has already been standardized (prior to entry into the regression equation), and thus, further standardization (i.e., as in ß's) could result in computation and interpretation difficulties (see Aiken & West, 1991).

.05). Similar to the child control moderating effect, at high levels of ODD behaviour, both high and low parent control attributions were associated with high levels of parent stress. However, at lower levels of ODD behaviour, parents who viewed themselves as having much control over child misbehaviours were less stressed than those with low control who believed that they could not effectively influence their children's acts of noncompliance (see Figure 3).

Table 7

Multiple Regression Analyses of the Significant Moderating Effects of Child Control and Parent Control Attributions

Criterion	Predictor	Cumulative R^2	Increase R^2	F-test	p	b[a]
Stress	ODD	.24	.24	67.18	.0001	.64
	Child Control	.27	.03	7.46	.01	-.22
	ODDxChild Control	.28	.02	4.65	.05	.19
Stress	ODD	.24	.24	66.38	.0001	.52
	Parent Control	.31	.07	20.00	.0001	-.37
	ODDxParent Control	.32	.02	5.15	.05	.18

[a]b weights at the final step, when all other variables have been entered into the regression equation, are presented.

Figure 2

The Moderating Effect of Child Control Attributions on the Relationship between Oppositional Defiant Disorder Behaviours and Parenting Stress.

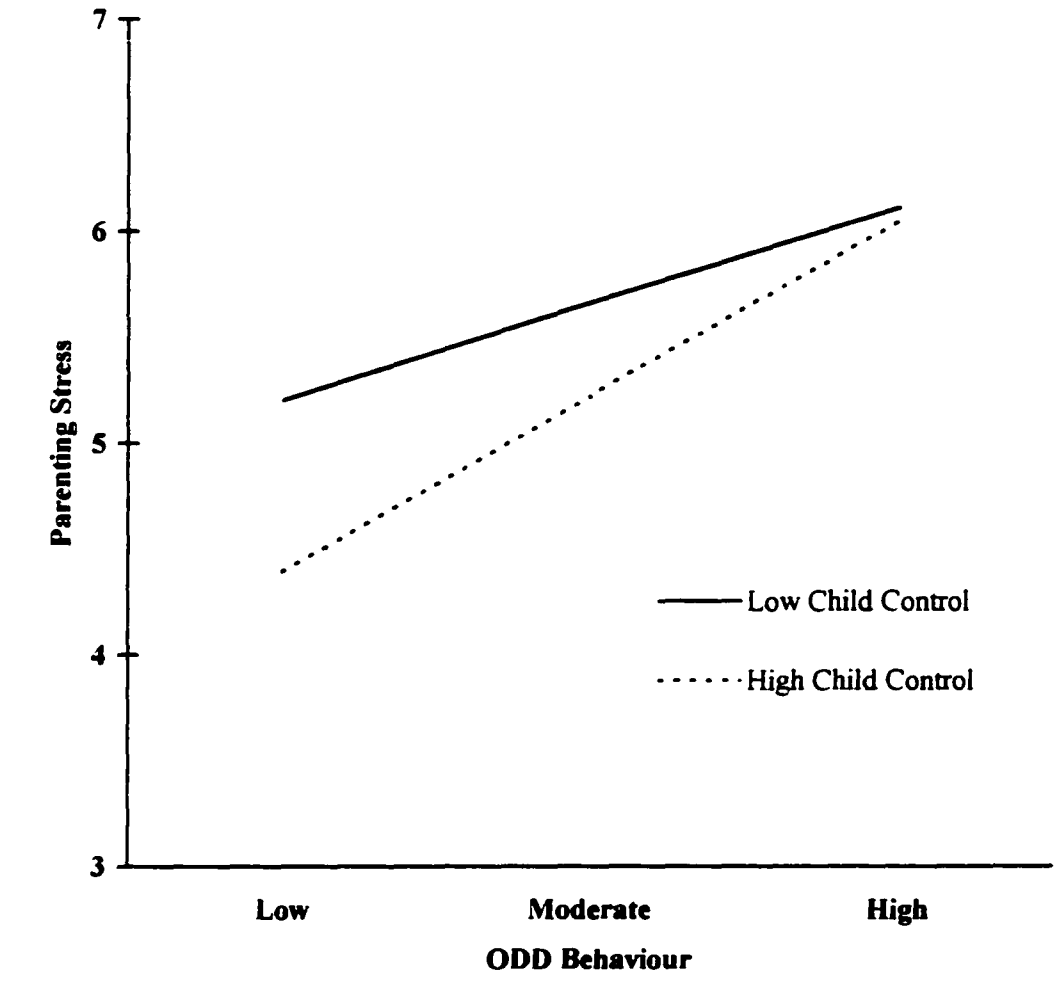
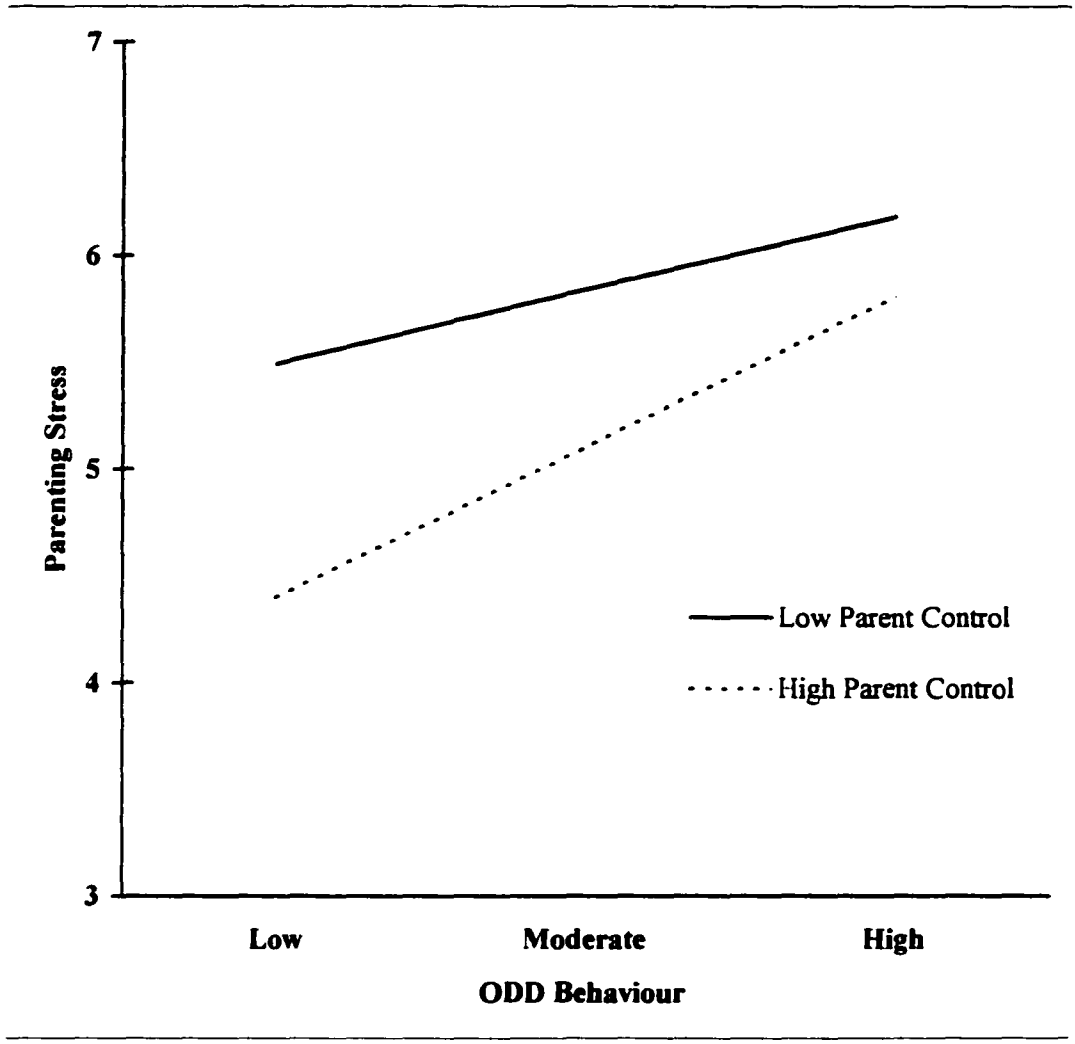


Figure 3

The Moderating Effect of Parent Control Attributions on the Relationship between Oppositional Defiant Disorder Behaviours and Parenting Stress.



Discussion

The present study consisted of two parts: (a) an investigation of differences in parental adjustment difficulties among parents with children displaying various patterns of ADHD and ODD behaviours, and (b) an examination of the role of parents' self- and child-focused control beliefs in the prediction of parenting stress.

The comparisons between groups of parents with children displaying different patterns of behaviour problems revealed that in general, parental adjustment difficulties depended upon both ADHD and ODD symptomatology, independent of each other. Subsequent analyses of the parenting stress variable indicated that parents of children displaying high levels of these behaviour problems, alone or in combination, were significantly more stressed than parents of comparison group children. The following pattern of results for parenting stress was found: parents of nonproblem children reported the best functioning, the combined ADHD and ODD group displayed the worst, and the pure ADHD and pure ODD groups fell in the midrange. Portions of this pattern of parent/family adjustment problems have been reported in the literature on ADHD and various conduct disturbances (e.g., CD, ODD, aggression) (e.g., Anastopoulos et al., 1992; Barkley et al., 1991; 1992; Hinshaw, 1987; Lahey et al., 1988; Pietzsch, Behrenz, & Johnston, 1996; Schachar & Wachsmuth, 1991), but very few studies have investigated parental adjustment among all four of these child behaviour subgroups.

For parental depressed mood, however, only the presence of ODD behaviours, and not ADHD behaviours, played an important role. This finding is consistent with the literature linking various forms of parent psychopathology (including depression) with

aggressive rather than hyperactive behaviour in children (Barkley et al., 1991; Hinshaw, 1987; Reeves et al., 1987). While several previous studies have found higher depression levels among parents of ADHD children compared to parents of nonproblem children (Befera & Barkley, 1985; Breen & Barkley, 1988; Cunningham et al., 1988; Mash & Johnston, 1983a), these results may be due to the comorbid condition of ODD or CD which was not assessed in these studies.

In the analysis designed to determine the role of family functioning problems in the prediction of parenting stress, the results were consistent with previous research (Cunningham et al., 1988); that is, family dysfunction was found to predict increased parenting difficulties beyond the contribution of child symptomatology. Whether family difficulties are a cause or an effect of parenting stress is not known, but this finding illustrates that the entire family system is in turmoil when parents feel the stress of raising a child with ADHD or ODD. The two-way ANOVA provided additional information about family dysfunction -- as reported by others (e.g., Szatmari, Offord, & Boyle, 1989), ODD symptomatology played a more primary role than ADHD symptomatology in elevated family dysfunction scores. When pairwise comparisons were made between the four subgroups, however, all three child behaviour problem groups evidenced greater dysfunction than the comparison group, and no difference between the pure ADHD and the ADHD/ODD groups was detected, unlike the Szatmari, Offord and Boyle (1989) finding. The results from these two analyses indicate that while ODD symptomatology appears to play a somewhat more substantial role than ADHD in elevated family dysfunction scores, the additive effect of ADHD and ODD remains important.

With regard to the relationship between parent attributions of control and parenting stress, the results were mixed. The findings for personal control attributions appear to be similar to Bugental et al.'s (1989) result of a relationship between low parent control (operationalized in her work as a causal attribution) and high parenting difficulties. In this study, if parents reported having little control over their child's misbehaviours (operationalized here as a descriptive attribution), they tended to report more emotional difficulties in their role as parents. Indeed, even after the contributions of child behaviour symptomatology, family dysfunction and parental depressed mood were controlled, perceptions of low parent control significantly predicted overall parenting stress, as expected. Thus, this measure of the descriptive attribution of parent control appeared to function in a similar way to Bugental's causal attribution of parent control in its relation to parent adjustment difficulties. Perceiving oneself as having little control over child misbehaviours or perceiving difficult interactions with children as being due to factors beyond one's control makes a parent more vulnerable to parent adjustment problems. However, an empirical test of the similarity of these parent-focused attributions is clearly still required.

Contrary to Weiner's (1993) theory and the supporting evidence of some researchers (e.g., Bugental et al., 1989; Johnston & Patenaude, 1994), the current study found that parental perceptions of one's child having control over his/her misbehaviours were not associated with greater parental distress. In fact, the opposite finding was significant, viz., high child control attributions were moderately associated with lower stress levels in

parents. This result appears to resemble Dix et al.'s (1986, Study one) finding of a negative relationship between child control and parent upset.

One means of understanding this atypical result extends from a learned helplessness model. Perhaps the low child control - high parenting stress relationship reflects the fact that parents who believed that they had little control over negative child behaviours also tended to believe that their children could not control misbehaviours (child control and parent control: $r = .43$). Thus, it is plausible that parents who are experiencing high levels of parenting stress have a type of pessimistic explanatory style which incorporates both types of low control beliefs, the result being, a "generalized helplessness effect" in which perceptions of having little personal control spill over into other areas, including those related to one's child's ability to control his/her life. To these parents, the world may seem unpredictable and uncontrollable (by anyone's efforts) and thus, extensively stressful.

Alternatively, the correlation between low child control and high parenting stress may reflect the similarity between the concepts of low control attributions and poor behavioural inhibition in children, a primary symptom of ADHD according to some theorists (e.g., Barkley, 1997). Barkley (1997) proposes that behavioural inhibition (i.e., the ability to inhibit behaviour and speech) corresponds to neuropsychological functions such as working memory and self-regulation of affect which influence an individual's ability to organize and execute goal-directed motor actions. Individuals with ADHD have a behavioural inhibition deficit which means that their behaviour is controlled more by the immediate context and its consequences than by internally represented information, such as

hindsight, forethought, plans, rules, and self-motivating stimuli. Supporting this model is the negative correlation between child control and ADHD symptomatology found in this data set ($r = -.31$, $p < .001$), indicating that parents who see their children as having little control over their misbehaviours rate their children as having more severe levels of ADHD. Given that this study's sample consisted mainly of parents of children with ADHD, parents' ratings of low child control may at least partially reflect greater severity of ADHD symptomatology in their children, and thus, it is not surprising that these parents reported greater parenting stress.

A final explanation for the mixed findings reported in the various studies simply may be that the researchers used different conceptualizations of child control attributions -- a common source of confusion within the parent attribution literature. For example, as guided by Weiner's (1985, 1993) model, Bugental and her colleagues (Bugental et al., 1989; Bugental et al., 1993; Lewis, et al., 1991) measured child control by having subjects rate the importance of several causes of an unsuccessful caregiving experience which vary in terms of child controllability (e.g., "how hungry the child was" is a low child control item and "how little effort the child made" is a high child control item), rather than rate the controllability of the misbehaviour directly. Additionally, these ratings are in response to the scenario: "Suppose you took care of a neighbour's child one afternoon, and the two of you did not get along well". Thus, perhaps holding the perception that shared negative caregiving outcomes are due to factors falling within the control of a neighbour's child involves fundamentally different cognitions than believing that one's own child's misbehaviours are controllable by him/her.

Furthermore, Dix et al. (1986) discuss their finding, which appears to be replicated in this study, as being the result of differing interpretations of "controllability" among researchers and parents who complete questionnaires. They explain that the parent participants in their study appeared to view lack of self-control as a controllable factor, comparable to effort, rather than an uncontrollable constraint, like lack of ability. Children who "lack self-control" are thought to act intentionally, and thus, the reaction of high parental upset is consistent with the result of a positive association between child intentionality and high parental upset also found in their study. While these two examples of measurement differences cannot account for the results of Johnston and Patenaude (1994) who measured the controllability of one's own child's misbehaviours as was done in this study, their finding of an association between low child control and high parenting efficacy has proven difficult to replicate (C. Johnston, personal communication, October, 1995).

The fact that attributions of control accounted for a significant proportion of the variance of parenting stress (beyond the contribution of child behaviour problems, family dysfunction and parental depressed mood) supports the notion that cognitive variables, particularly the degree of control which parents feel they have over child misbehaviours, play a significant role in the stress that parents experience. The analyses of the moderating influences of control attributions added further information about the role of such perceptions in parenting stress. For parents who reported that their children displayed low to moderately high levels of oppositionality, low control beliefs (both child-related and parent-related) were associated with greater stress than high control perceptions. However,

parents who reported that their children's ODD behaviour problems were very severe (i.e., 3 standard deviations above a community sample mean), experienced very high parenting stress, regardless of their beliefs about their own or their children's ability to control specific misbehaviours. Thus, while perceiving oneself and one's child as having some control over misbehaviours appears to be a "healthier" cognitive style (i.e., associated with lower stress), high levels of parenting stress are inevitable, regardless of one's control attributions, when one's child is extremely oppositional.

While this study points to the important role played by attributions of control in parents' experience of raising children with ADHD, the meaning and generalizability of the results are limited by the narrow scope of attribution measurement employed. Further clarification of the relation between the various types of control beliefs and parent adjustment problems is required. The question of whether researchers' fine distinctions between attributional concepts (e.g., descriptive control, causal control, responsibility) are important to parents' experience of stress remains unanswered. In order to address these research concerns, efforts must be made to more broadly measure control attributions by including the wide variety of related terms (e.g., responsibility, blame, intent) used by investigators in their attributional measures.

Study 2

As in study one, the main goals of study two were to test the relative impact of ADHD and ODD symptoms on parental adjustment problems, and to determine the degree to which parent attributions (self- and child-focused) would predict parenting stress beyond the influence of these behaviour symptoms and parental depressed mood.

The key difference in study two is the use of a more comprehensive measure of parent attributions. In addition to the measures of descriptive control attributions (child- and parent-centred) used in study one, causal control attributions and responsibility attributions were assessed using items/scales developed through previous research (i.e., questions regarding intentionality, blame, etc.; Parent Attribution Test devised by Bugental et al., 1989). It was anticipated that the inclusion of these additional attributional concepts would clarify and extend the findings of study one regarding the relationship between control attributions and parenting stress. A better understanding of the distinctions between multiple attribution concepts was pursued using an exploratory factor analysis procedure. It was expected that the child responsibility variables would form a factor distinct from parent responsibility items. However, specific hypotheses regarding the factor structure of the descriptive and causal control items were not made. In the subsequent analyses, both the attributional components detected through the factor analysis procedure and the original attribution measures were used to investigate the relationship between parenting stress and parent attributions.

The following four outcomes were expected. (1) The negative correlation between parent control and parenting stress (i.e., low parent control - high stress) found in study

one would be replicated. No hypothesis regarding the direction of the relationship between child control attributions and parenting stress was proposed. A positive association (i.e., high child control - high stress) would provide further support for Weiner's (1993) model, whereas a negative association would replicate study one's finding which has been interpreted as a generalized helplessness effect or as a reflection of behavioural inhibitory deficits in children with ADHD. (2) Parents who make causal attributions of low personal control and high child control (on the Parent Attribution Test) would report higher parenting stress than parents with other combinations of control attributions in this study's sample, a result which would replicate that of Bugental (1995). No predictions regarding correlations between parenting stress and the other attribution measures (e.g., newly introduced parent and child responsibility items) were made because of the unknown factor structure which would emerge from an exploratory factor analysis of attribution scales. (3) Parent attributions would predict parenting stress beyond the influence of child behaviour problems, parental depressed mood and child age. (4) The moderator effects of study one would be replicated.

Method

Participants

The participants were 156 parents (83% mothers and 17% fathers) who had children with ADHD and either were members of a learning disabilities association or attended one of 10 parent support groups in Southwestern Ontario, geared towards meeting the emotional and informational needs of parents of children with ADHD. Appendix E displays the composition of the sample broken down by location of the parenting groups.

As in study one, a quasi-community sample was chosen in order to gain a broader distribution of ADHD scores than would normally be found among typically studied samples of clinic-referred families. Eighty-five percent of parents were married or living with a common-law partner. Their average rating of knowledge about ADHD was 5.0 (SD = 1.39) on a 7-point scale (where 7 = "extremely well informed").

The participants' children ranged in age from 4 to 18, with a mean age of 9.97 years (SD = 3.22). Eighty-five percent of the children were boys; 15% were girls. According to parental report, 94% of the children had been diagnosed with ADHD, 15% of whom had other diagnosed difficulties as well (e.g., learning disabilities (n=16), ODD/Conduct Disorder (n = 5), Tourette's Syndrome (n = 4)). Only one child had a difficulty other than ADHD ("sexually abused as an infant"), and eight children (5% of total sample) had had no diagnosis given to them. Eighty percent of the children with ADHD were reportedly receiving pharmacological treatment for their condition.

Measures

Parent Attributions. Both causal and descriptive control attributions were measured using an analogue method. *Causal control attributions* (child and parent) were measured using the Parent Attribution Test (PAT; Bugental et al., 1989; see Appendices F and G), a measure in which respondents are asked to rate the relative importance of potential causes of an imagined unsuccessful adult-child interaction. In Bugental's development of the PAT, test items were generated by having a sample of mothers provide responses to open-ended questions concerning the causes of unsuccessful and successful interactions with a neighbour's child (Bugental & Shennum, 1984). A multidimensional scaling analysis was

then performed on these responses (Bugental et al., 1989), revealing two major dimensions (pertinent to both success and failure domains), viz., controllability of outcomes (low versus high) and locus of control over outcomes (adult versus child). The current study used items reflecting causes of negative caregiving situations only, as items regarding positive caregiving situations are beyond the scope of this research and have not consistently yielded a cohesive factor structure in subsequent exploratory and confirmatory factor analyses (Bugental, 1995). Examples of controllable causes include the use of the wrong child rearing approach and how well one gets along with children in general (for the parent) and stubbornness and lack of effort (for the child). Examples of uncontrollable causes include mood, fatigue and illness. Two subscale scores are calculated by summing across six items each -- adult control over failure (ACF) and child control over failure (CCF). Both scales have been found to be adequately reliable and valid.

Descriptive attributions of control were measured using the Parent Perception Questionnaire, Form 2 (PPQ-2; see Appendix H), the original version of which was developed for the previous study. Parents were presented with the three scenarios of study one (in random order) depicting events in which a child fails to comply with a parent's request. Subjects were asked to imagine that the misbehaving child in each vignette was their own. Following each scenario, the child and parent control items used in study one were presented to participants. A child control and a parent control score were calculated by summing ratings across the three scenarios.

Expanding the PPQ procedure used in study one, following each of the three vignettes, parents responded to several additional items (also displayed in Appendix H)

which were designed to both improve the reliability of the initial control measures and to measure a variety of related concepts including *responsibility*. The child responsibility items were based on those employed by Dix and his colleagues (e.g., Dix & Lochman, 1990) and by close relationship researchers (see Bradbury & Fincham, 1990). These items include questions about intent, responsibility, blame, and negative motivation and have been widely used to tap responsibility and blame attributions. Two other items were added which address perceptions about a child's ability to inhibit his/her misbehaviours ("Could your child have acted otherwise?" and "Could your child have held him/herself back from acting as he/she did?").

Items of the PPQ-2 designed to assess the responsibility which parents feel they have for their child's misbehaviours used language corresponding to several of the child responsibility items (e.g., questions about responsibility, blame, and ability to prevent the misbehaviour). In addition, two items reflecting parents' sense of "ultimate responsibility" for child misbehaviours were included following each scenario. These items are: "Do you feel you should have been able to stop your child from behaving as he/she did?" and "Was your child's misbehaviour due to your own ineffectiveness as a parent?".

Child Behaviour. The ADHD and ODD subscales of the Revised Ontario Child Health Study questionnaire were used to measure ADHD and ODD symptomatology (Boyle et al., 1993).

Parenting Stress and Depressed Mood. Parenting stress was measured using a collection of rating items (found in Appendix I). As in study one, a single item rating of the stress which parents have experienced raising their challenging children was included.

Other items which addressed the range of stress experienced as a parent, perceived coping success, and degree of stress involved in raising a "typical child" were surveyed in an exploratory fashion. As in the previous study, the Centre for Epidemiological Studies' Depression Scale (CESD; Radloff, 1977) was employed to measure parents' level of depressed mood.

Procedure

Parents were invited to participate in the research study during one of their parenting group meetings. Typically, questionnaires were completed and returned to the researcher at the beginning of a group meeting. The only exception to this procedure involved members of a learning disabilities association who had children with ADHD. These parents received their questionnaires by mail, and returned them by mail. All parents were instructed to complete the attribution measures thinking of their children's behaviour off medication.

Results

Descriptive Information

As in study one, preliminary descriptive statistics were calculated prior to addressing the research questions. First, reliability estimates of the child control and parent control subscales of the PPQ-2 were calculated (Cronbach's alpha). These three item scales which corresponded to three scenarios had internal consistency coefficients of .75 (child control) and .72 (parent control). While these values are slightly lower than those of study one, they are still within an acceptable range.

Table 8

Descriptive Statistics of Attribution, Child Behaviour and Parent Adjustment Variables in Studies One and Two

	Study One				Study Two			
Variable	**Mean**	**SD**	**Z-score**	**N**	**Mean**	**SD**	**Z-score**	**N**
Child Control*	11.25	3.49		219	10.42	4.08		154
Parent Control**	10.03	3.25		217	9.07	3.39		152
ADHD Behaviour***	19.77	4.85	2.09	229	21.25	4.71	2.35	152
ODD Behaviour***	11.05	4.33	2.04	228	12.74	4.09	2.54	156
CESD*	13.78	11.49	.53	218	16.52	12.19	.85	150
Stress***	5.44	1.41		232	5.87	1.18		156
Coping	3.62	1.53		232	3.64	1.54		156

Note. Lower CESD, Stress, Coping scores indicate better functioning. Lower child and parent control scores indicate lower levels of control.
*$p < .05$. **$p < .01$. ***$p < .005$.

Table 8 displays the means and standard deviations of the attribution, child behaviour and parental adjustment variables for this sample and the previous study's sample. Given that parents attending ADHD support groups were selected for the study, it is not surprising that parents reported levels of ADHD and ODD behaviours greater than two standard deviations above the mean of Boyle et al.'s (1993) community sample, and

significantly higher than the child behaviour levels of the study one community sample (t (379) = -2.96; $p < .005$ and t (382) = -3.82; $p < .001$ for ADHD and ODD behaviours respectively). Additionally, CESD scores were nearly one standard deviation above a normative mean (Radloff, 1977). These parents reported significantly higher levels of depressed mood than those of the previous study (t (366) = -2.20; $p < .05$). Also, the parents of study two saw themselves and their children as having significantly lower levels of control over child misbehaviours than did the parents of study one (t (367) = 2.74; $p < .01$ and t (371) = 2.11; $p < .05$ for parent control and child control respectively). Although the average stress scores in study two are significantly higher than those obtained in the study one sample (t (388) = -3.33; $p < .001$), this small difference in stress levels (less than a 1/2 point on a 7-point scale) lacks any apparent clinical meaningfulness.

Exploratory Factor Analyses of Attributional Measures

In order to determine how well the many attribution variables contained within the PAT and the PPQ-2 could be explained by common components, the data were subjected to an exploratory factor analysis. A scree test and an examination of the eigenvalues which were greater than 1.0 indicated that a six factor solution was the best fit for the data, accounting for 71% of the variance among the attribution variables. The first and second factors were generally comprised of the child and parent control/responsibility items of the PPQ-2, respectively. Factors three through six reflected the four aspects of the PAT detected by Bugental (1995) -- low parent control, high parent control, low child control, and high child control.

Since it was clear that the PPQ-2 and the PAT shared little variance, and thus, tapped different meanings of control for parents, a principal components analysis of the PPQ-2 alone was conducted. Further analyses of the PAT were not deemed necessary as this measure has been well investigated by its author, and exploratory and confirmatory factor analyses have consistently yielded a four factor solution (Bugental, 1995).

The result of the principal components analysis focused on the PPQ-2 was somewhat ambiguous; although the magnitude of the eigenvalues allowed a three factor solution, based on the scree test, a two factor solution appeared preferable. The two factor solution accounted for 67% of the variability among items. A third factor accounted for another 8% of variance. When the three factors were extracted and rotated (varimax), the third factor consisted of only one item (child negative motivation), signifying a poorly defined and uninformative factor (see Tabachnick & Fidell, 1989). Thus, the more parsimonious, two factor solution was accepted.

As shown in Table 9, when the two factors were extracted and subjected to a varimax rotation, the hypothesis that the child responsibility items and the parent responsibility items generally would load on two distinct factors was supported. Six of seven child items loaded highly on the first factor (child control, responsibility, intentionality, ability to act otherwise, blame, ability to inhibit). The loading for the seventh item (child negative motivation) was acceptable (.58), but substantially lower than the other child items' loadings (ranging from .80 to .86). Accordingly, the child negative motivation item was discarded as it appeared to represent a somewhat different attributional concept. The second factor consisted of five of the six parent control/responsibility items

(parent responsibility, prevent, blame, should stop, and ineffectiveness). Surprisingly, the parent control item of the PPQ-2 (and PPQ) loaded moderately on both factors (.42 and .44 on factors one and two respectively).[9] Thus, the parent control variable was discarded; however, because it had particular significance in the previous study, it was included as a separate variable in later analyses. Additionally, for purposes of consistency and study one replication attempts, the original child control variable was included in most analyses, separate from the child factor. Thus, the 13 PPQ-2 items were reduced to a 5-item "child responsibility" factor, a 5-item "parent responsibility" factor, and the original parent and child control items.

While the exploratory factor analyses revealed that perceptions of parent control shared some variance with perceptions of child responsibility and self-responsibility, several partial correlations were calculated to better understand the nature of the parent control item. Partialling out the child and parent responsibility factors[10], parent control was found to correlate with the age of the child ($r = .21$, $p < .01$) and the amount of ADHD behaviours endorsed ($r = -.26$, $p < .005$). Thus, in addition to tapping high levels of self- and child responsibility for child misbehaviours, high personal control attributions proved to be more common among parents with older children who had lower levels of ADHD symptomatology.

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[9]In the three factor solution, the same child and parent factors emerged, along with the child motivation factor. Again, the parent control item did not load highly on any of the three factors (.51, .41, and -.39 on factors one, two and three respectively).

[10]Child control was included in the child responsibility factor for these analyses.

Table 9

Results of the Principal Components Analysis of PPQ-2 Items following a Varimax Rotation

Variable	Factor 1	Factor 2
Child Control	.80	.14
Child Responsibility	.85	.13
Child Intentionality	.81	.26
Child Could Act Otherwise	.85	.21
Child Blame	.86	.18
Child Negative Motivation	.58	.10
Child Could Inhibit	.86	.19
Parent Control	.42	.44
Parent Responsibility	.14	.87
Parent Could Prevent	.31	.71
Parent Blame	.17	.90
Parent Should Stop	.15	.79
Parenting Ineffectiveness	.10	.81

Comparisons of Parents of Children with Various Behaviour Problems

As in study one, the adjustment difficulties of parents with children displaying various behaviour problems were investigated by dividing the participants into the following four child behaviour groups: "pure ADHD", "pure ODD", "combined" and "comparison". The same threshold of 2.0 standard deviations above Boyle et al.'s (1993) sample means for ADHD and ODD was used to categorize the data. The number of participants with children in each of the four child behaviour subgroups is reported in Table 10.

Table 10

Demographics of the Four Child Behaviour Subgroups

Variable	Child Behaviour Subgroup			
	Comparison (n = 22)	**Pure ADHD** (n = 19)	**Pure ODD** (n = 33)	**Combined** (n = 78)
% Male Children	81.8	89.5	87.9	83.3
% Mothers	81.8	94.7	84.8	80.5
% Single	13.6	15.8	9.1	19.2
% Parent Training	77.3	73.7	75.8	69.2
Child age (M)	10.55 (3.43)	9.00 (2.89)	10.79 (3.08)	9.65 (3.17)
Knowledge of ADHD (M)	4.96 (1.36)	5.13 (1.35)	4.97 (1.26)	5.03 (1.49)
ADHD (M)	14.79 (3.50)	23.08 (2.38)	17.20 (2.16)	24.27 (2.62)
ODD (M)	6.29 (2.57)	8.05 (2.46)	14.21 (2.12)	14.93 (2.14)

Table 10 displays the results of several analyses (both Chi-Square and one-way ANOVAs) comparing the four groups across some demographic variables. These analyses revealed that the four groups did not differ significantly on any of the demographic variables measured (i.e., age of child, gender of child, reporting parents' gender, knowledge of ADHD, marital status, or attendance at previous parent training programs).

Group differences on parenting stress, coping and depressed mood[11] were initially analyzed using a multivariate analysis of variance (MANOVA) with ADHD (high versus

[11]As in study one, the CESD variable violated the assumption of homogeneity of variance. It was transformed using a logarithmic function and all analyses of the CESD (i.e., MANOVA and ANOVA) were conducted on the transformed data.

low) and ODD (high versus low) as the between-subject factors. This analysis revealed a significant main effect for ADHD behaviours (F (3,140) = 3.72, $p < .01$) and ODD behaviours (F (3,140) = 5.78, $p < .001$), but not for the interaction between the two behaviour factors (F (3,140) = .13, $p > .05$). Thus, parental adjustment difficulties were dependent upon levels of both ADHD and ODD behaviours, replicating the study one finding. As discussed in the following section, follow-up two-way ANOVAs were calculated for each dependent variable, and Tukey HSD tests were conducted when appropriate (summarized in Table 11).

Parenting Stress. The 2 x 2 ANOVA yielded two significant main effects (ADHD: $F(1,142) = 13.16$, $p < .001$; ODD: F (1, 142) = 13.96, $p < .001$), but no interaction effect when parenting stress was the dependent variable. Follow-up Tukey tests indicated that the combined group reported significantly greater stress than the parents of the comparison, pure ADHD and pure ODD groups. Unlike study one, the two pure groups did not differ significantly from the comparison group. However, the pattern of means found in study one was replicated such that parents of nonproblem children reported the lowest stress, the combined ADHD and ODD group showed the worst, and the pure ADHD and pure ODD groups fell in the midrange.[12]

[12]When the data were reanalyzed after the three most extreme scoring subjects' data were deleted (i.e., one subject from each of the three child behaviour problem subgroups whose stress rating was more than 2.75 standard deviations below the corresponding subgroup mean and more than 3 standard deviations below the overall parenting stress mean), the Tukey HSD tests yielded somewhat different results. Within the trimmed sample, the pure ADHD, pure ODD and combined groups had significantly higher parenting stress levels than the comparison group (as found in study one). Additionally, the combined group was more stressed than the pure ODD group. The results of the MANOVA, ANOVAs and Tukey tests for the other dependent variables (CESD and coping) did not change when the trimmed sample was used.

Table 11

Mean Stress and CESD Scores of Parents with Children in the Four Behaviour Groups

	Child Behaviour Subgroup				
Adjustment Variable	**1 Comparison** (n = 21)	**2 Pure ADHD** (n = 19)	**3 Pure ODD** (n = 33)	**4 Combined** (n = 73)	**p < .05**
Stress	4.86 (1.20)	5.53 (1.22)	5.61 (1.06)	6.29 (.99)	1, 2, 3 < 4
CESD[a]	10.64 (8.96) [3.38 (.28)]	10.84 (7.75) [3.40 (.23)]	16.03 (10.98) [3.54 (.31)]	19.77 (13.45) [3.63 (.34)]	1, 2 < 4

Note. Tukey HSD tests used to detect differences between means.
[a]means and standard deviations for the log transformed CESD variable are in brackets.

Depressed Mood. The two-way ANOVA on the CESD revealed only a significant ODD main effect (F (3,142) = 10.74, $p < .001$)[13]. Subsequent pairwise contrasts showed significantly higher depressed mood scores among parents of children in the combined group compared to parents with children in the comparison and pure ADHD groups. Again, the means of the four behaviour groups were ordered such that the comparison group reported the lowest level of depressed mood, followed by the pure ADHD, pure ODD and combined groups.

[13]F-value for the log transformed data.

Parent Coping. The two-way ANOVA for the coping variable did not reveal any significant effects.

Table 12

Correlations between Parent Attributions and Adjustment Measures

	Attribution Variable					
Adjustment Variable	**Child Control**	**Parent Control**	**Child Respons. Factor**	**Parent Respons. Factor**	**CCF**	**ACF**
Stress	n.s.	-.30***	n.s.	n.s.	n.s.	-.17*
Stress on Good Day	-.20*	-.24**	-.19*	n.s.	n.s.	n.s.
Stress on Bad Day	n.s.	-.25**	n.s.	n.s.	n.s.	n.s.
CESD	n.s.	n.s.	n.s.	n.s.	n.s.	-.15
Coping	n.s.	n.s.	n.s.	.13	.15	-.25**

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

Relationship between Parent Attributions and Parenting Stress

The second set of research questions addressed the association between the variety of control/responsibility attributions and parenting stress indices. Table 12 displays the Pearson-r correlation coefficients of the attribution - stress/adjustment analyses; the correlations among the various attributional measures are recorded in Table 13. As in study one, the original parent control measure correlated negatively with parenting stress ($r = -.30$, $p < .001$), indicating that the belief that one has little control over one's child's misbehaviours was related to greater parenting stress. However, unlike the previous study, the child control rating was not associated with stress. Additionally, these two single-

variable attributional measures did not correlate with CESD or parent coping. The parent responsibility and child responsibility factors of the PPQ-2, and the child control subscale of the PAT (CCF) also were not associated with parenting stress. In contrast, the adult control subscale of the PAT (ACF) was found to correlate with parenting stress and coping such that attributions of low control were associated with greater adjustment difficulties. Thus, of the various attributions measured, only the two parent control variables (of the PPQ-2 and the PAT) were related to parenting stress.

Table 13

Correlations among the Attribution Variables of the PPQ-2 and the PAT Measures

	Child Control	**Parent Control**	**Child Respons. Factor**	**Parent Respons. Factor**	**CCF**	**ACF**
Child Control		.50***	.76***	.34***	n.s.	n.s.
Parent Control	.50***		.44***	.48***	n.s.	.12
Child Respons.	.76***	.44***		.43***	n.s.	n.s.
Parent Respons.	.34***	.48***	.43***		n.s.	.15
CCF	n.s.	n.s.	n.s.	n.s.		n.s.
ACF	n.s.	.12	n.s.	.15	n.s.	

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

Analyses of the relationship between the above attribution variables/factors and the other parenting stress indices yielded similar results. Although high levels of "parenting stress on a good day with one's child" were modestly related to attributions of both low child control and low child responsibility (measured using the PPQ-2), only the (descriptive) parent control variable was consistently related to all of the stress measures. Lower levels of parent control were associated with reports of higher parenting stress on a good day ($r = -.24$, $p < .005$) or a bad day with the child ($r = -.25$, $p < .005$), and with higher general stress when the stress involved in raising a "typical child" was partialed out ($r = -.31$, $p < .0001$).

The relationship between the attribution variables and parenting stress was further investigated in a manner often preferred by Bugental and her associates (e.g., Bugental, Blue, & Lewis, 1990; Bugental et al., 1993) using a series of 2x2 ANOVAs with median splits of self-focused attributions (low versus high) and child-focused attributions (low versus high) as the two between-subjects factors. On the PAT, no significant main or interaction effects were found for the ACF or CCF factors. Although Bugental's (1995) finding of significantly higher daily stress levels among parents with attributions of low personal control and high child control (low "perceived control over failure" (PCF)) was not replicated within the current sample, low PCF parents did report the highest levels of parenting stress ($M = 6.12$, $SD = .78$) compared to parents with the other three combinations of child- and self-attributions ($M = 5.40$, $SD = 1.39$; $M = 5.71$, $SD = 1.31$; $M = 5.91$, $SD = 1.04$) (as anticipated in Hypothesis 2). When the PPQ-2's two responsibility factors were used as the between-subjects factors, no significant differences

in parenting stress were found. In contrast, a significant main effect for parent control was detected in the ANOVA employing the two control variables as between-subject factors (F (1,143) = 11.09, $p < .001$). Follow-up analyses revealed that parents with low personal control and high child control attributions were significantly more stressed in their parenting roles (M = 6.30, SD = 1.03) than parents with high personal control and low child control attributions (M = 5.33, SD = 1.49).

Attributions in the Prediction of Parent Adjustment

As in study one, a series of hierarchical multiple regression analyses were conducted in order to determine whether parent attributions would contribute to parenting stress beyond the influence of other variables. In step one, the following covariates were entered into the regression equations: ADHD and ODD behaviour score, CESD score and, as is often done by other researchers (e.g., Cunningham et al., 1988; Dix & Lochman, 1990; Johnston & Patenaude, 1994), child age. In the subsequent steps, the PAT and the PPQ-2 attribution variables/factors were entered into the regression equation. Since there was no theoretical justification for entering one scale before the other, the collective effect of the attributional factors was assessed using two separate regression equations, one in which (a) the PAT was entered before the PPQ-2, and the other in which (b) the PPQ-2 was entered prior to the PAT. In both of the analyses, the various components of each attribution scale were entered into the regression equation simultaneously.

Table 14

Multiple Regression Analyses Predicting Parenting Stress from the PAT and PPQ-2 Variables, Controlling for Child Behaviour Problems, Child Age, and Parent Depressed Mood

Criterion	Predictor	Cumulative R^2	Increase R^2	F-test	ß[a]
Stress	ADHD				.25***
	ODD	.33	.33	15.56***	.21**
	CESD				.24***
	Age				-.03
	ACF	.34	.01	.97	-.09
	CCF				.03
	Child Control				-.04
	Parent Control	.40	.06	3.15*	-.26***
	Child Respons.				.21**
	Parent Respons.				.13
Stress	ADHD				.25***
	ODD	.33	.33	15.56***	.21**
	CESD				.24***
	Age				-.03
	Child Control				-.04
	Parent Control	.39	.06	3.25**	-.26***
	Child Respons.				.21**
	Parent Respons.				.13
	ACF	.40	.01	.87	-.09
	CCF				.03

[a]beta weights at the final step, when all other variables have been entered into the regression equation, are presented.
*p < .05. **p < .01. ***p < .005.

As presented in Table 14, the initial set of variables significantly predicted parenting stress. Individually, child behaviour symptomatology (both ADHD and ODD) and parent depressed mood accounted for significant portions of parenting stress' variance at the initial step and also at the final step, when all other variables were included in the regression equations. Child age, however, was not a significant predictor of unique variance.

After the contribution of the covariates was assessed, the PAT did not predict parenting stress; however, the subsequent entry of the four components of the PPQ-2 (child responsibility, parent responsibility, child control and parent control) did account for a significant proportion of variance in parenting stress (6%, $p < .05$). A significant amount of unique variance was contributed to parenting stress by attributions of low parent control over child misbehaviours ($\beta = -.26$, $p < .005$); additionally, the contribution of high child responsibility attributions approached significance ($\beta = .21$, $p = .08$). Neither the child control variable nor the parent responsibility factor were significant predictors of unique variance.[14] Thus, believing one's child is highly responsible/blameworthy for his/her misbehaviours and believing that one has little control over child misbehaviours tended to predict high parenting stress scores, beyond the influence of child symptomatology, age and parent depressed mood.

Similarly, when the PPQ-2 components were entered immediately after the covariates (and prior to the PAT), this block of variables accounted for a significant

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[14]The PPQ-2 was also entered into the regression equations as a three component measure for comparison purposes. That is, child control was included in the (1) child responsibility factor, rather than entered on its own, and entered simultaneously with (2) parent control and (3) parent responsibility. Using this procedure, the supplemented child responsibility factor's unique contribution to parenting stress achieved a higher significance level ($\beta = .17$; $p < .05$).

portion of variance (6%, $p < .01$), with low parent control contributing unique variance to parenting stress scores ($\beta = -.27$, $p < .005$) and high child responsibility's contribution to parenting stress approaching significance ($\beta = .20$, $p = .09$).[15] However, when the PAT was entered into the regression equation on the third step, it did not account for a significant amount of variance in parenting stress beyond the contributions made by the previously entered variables (ADHD and ODD behaviours, child age, CESD, PPQ-2). At this final step of the analysis, the variables collectively had accounted for 40% of the variance in parenting stress.

Control and Responsibility Attributions as Moderating Variables

In order to more fully investigate the relationship between attributions and parenting stress, several analyses were conducted to test the potential moderating effect of attributions in the relationship between child symptomatology and parenting stress. The significant moderating effects discovered in study one for both parent control and child control were not replicated with this sample. Moderating effects for the parent responsibility factor and the two PAT subscales also were not detected, although a modest moderating effect for child responsibility was found ($b = .18$, $p < .05$)[16] which is depicted in Table 15 and Figure 4. This finding indicates that while a significant positive relationship exists between ADHD child behaviours and parenting stress at both high and low levels of child

[15]When child control was included in the child responsibility factor, the significance value associated with this factor's contribution to parenting stress reached a more acceptable level ($\beta = .18$; $p < .05$).

[16]The moderating effect of child responsibility remained essentially the same ($b = .17$, $p < .05$) when child control was included in this factor.

responsibility beliefs, this relationship is stronger when parents make high child responsibility as opposed to low child responsibility attributions. Thus, as ADHD symptomatology increases, parents who blame their children for misbehaviours are especially prone to very high levels of parenting stress. Other than this effect, however, the attribution variables of this study generally did not function as moderators in the relationship between child symptomatology and parenting stress.

Table 15

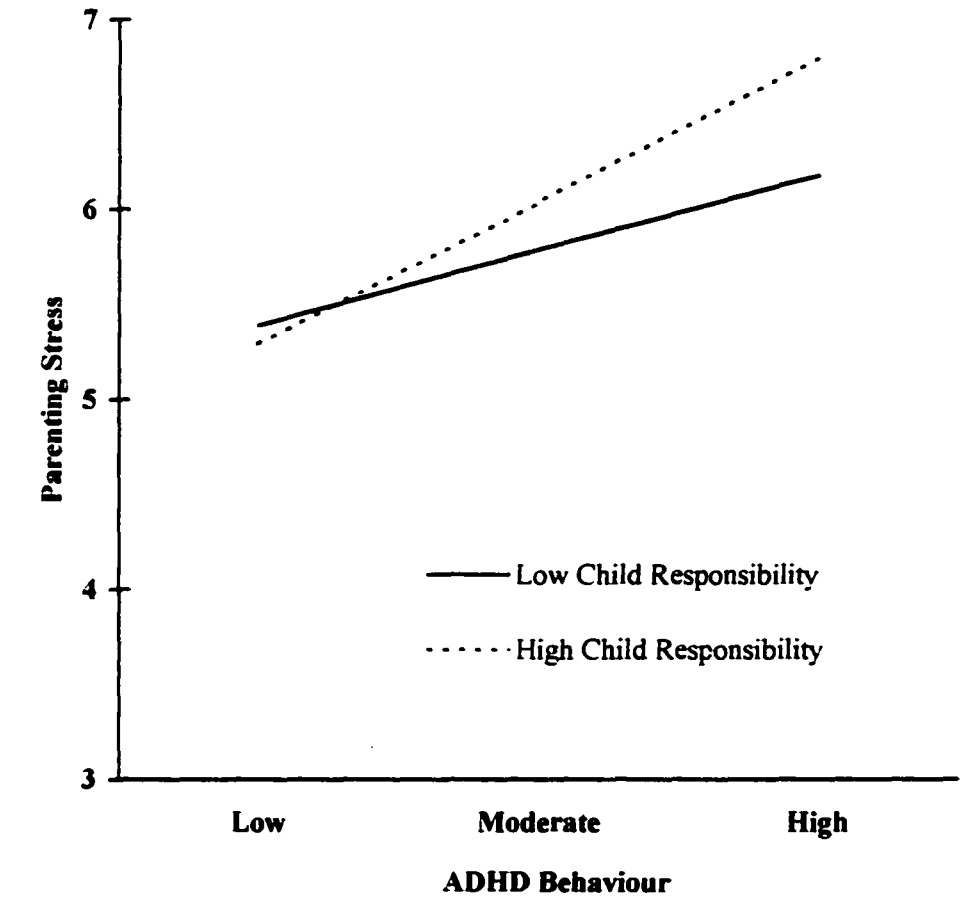
Multiple Regression Analysis of the Significant Moderating Effect of Child Responsibility

Criterion	Predictor	Cumulative R^2	Increase R^2	F-test	p	b[a]
Stress	ADHD	.21	.21	37.76	.001	.58
	Child Respons.	.22	.01	1.95	n.s.	.13
	ADHDxChild Respons.	.25	.03	4.66	.05	.18

[a]b weights at the final step, when all other variables have been entered into the regression equation, are presented.

Figure 4

The Moderating Effect of Child Responsibility Attributions on the Relationship between Attention-Deficit/Hyperactivity Disorder Behaviours and Parenting Stress.



Discussion

Adjustment Levels of Parents of Children with Various Behaviour Problems

As in the first study, differences in adjustment difficulties were investigated among parents with children displaying low or high levels of ADHD and ODD behaviours. The results of these analyses closely resemble those of study one. First, the overall main effects of both ADHD and ODD behaviours were replicated; parents of children with high degrees of ADHD (independent of ODD) or ODD (independent of ADHD) reported greater adjustment difficulties than parents of children with low degrees of either behaviour problem. Second, consistent with study one and several previous studies (Barkley et al., 1991; Hinshaw, 1987; Reeves et al., 1987), parental depressed mood was dependent upon levels of ODD behaviours, but not upon ADHD behaviours. This finding is consistent with the notion that an environment of maternal depression may foster oppositional behaviours in children, likely due to negative parenting behaviours such as frequent criticisms (Webster-Stratton, 1988) and inconsistent management of child noncompliance (Barkley, 1990). Third, main effects for both ADHD and ODD behaviours were detected on the parenting stress measure indicating that parenting stress is dependent upon both types of child behaviour problems. The means of the four child behaviour subgroups were ordered such that the greatest stress was reported by parents of children displaying the combination of ADHD and ODD symptoms, the lowest stress was indicated by the comparison group, and levels of stress for the two pure behaviour groups fell in the midrange.

In contrast, the results of the pairwise comparisons for the parenting stress variable differed between the two studies. Unlike study one, parents of children categorized as pure ADHD did not report significantly higher degrees of parenting stress than parents of comparison group children. However, given that the four subgroup means showed the same pattern within both studies, and that the pure ADHD group did differ from the comparison group once the influence of three outlier subjects was removed, the discrepancy between study one and two does not change the impression of an additive impact of child psychopathology.

Relationship between Control Attributions and Parenting Stress

With regards to the first hypothesis concerning the relationship between descriptive attributions (as measured in the PPQ-2) and parenting stress, there were mixed findings. First of all, the negative association between parent control and parenting stress found in study one was replicated. Thus, within a population of parents with children displaying somewhat more extreme levels of ADHD and ODD behaviours, the perception that one has little control over one's child's misbehaviours was associated with higher parenting stress. This low personal control - poor psychological adjustment association is also consistent with studies outside of the parenting context such as found in research addressing the degree of control individuals feel they have over the course of a physical illness (Affleck, Tennen, Pfeiffer, & Fifield, 1987; Taylor, Lichtman, & Wood, 1984) and the degree of personal control individuals perceive within demanding work environments (Karasek & Theorell, 1990).

However, child control attributions were not significantly related to parenting stress in a negative direction as in study one, nor positively associated as reported in previous studies employing parental upset as the outcome variable (Johnston & Patenaude, 1994; Scott & Dembo, 1993). The possibility that the study one correlation was reduced from r = -.23 (p = .001) to r = -.09 (p = .25) in study two because of a restricted range of parenting stress scores was investigated using a correction for attenuation formula (Ghiselli, Campbell, & Zedeck, 1981). After correcting for this potential problem, the correlation rose only slightly to r = -.11, and remained nonsignificant (p = .19). Thus, the lower r in sample two cannot be accounted for by a restricted range of stress scores. Instead, the null finding may simply reflect the fact that within a smaller sample, replication of a subtle effect is particularly difficult. However, such a finding is not necessarily understood as evidence of "no relationship". In fact, a replication attempt which results in a smaller effect size with the same sign (i.e., negative) may actually strengthen the impression of a true effect (see Rosenthal, 1986).

Exploratory Factor Analysis of the Attributional Concepts Measured

An exploratory factor analysis of the many attributional concepts was conducted to investigate the similarity/distinctiveness of causal control attributions (PAT), descriptive control attributions (PPQ-2) and responsibility attributions (PPQ-2). While the expectation that child responsibility items would form a factor distinct from parent responsibility items was supported, an unexpected lack of overlap between the PPQ-2 and the PAT control items resulted. Although these two types of measures are often presented as being conceptually similar in the literature, it appears that the concept of control over one's

child's misbehaviour (a descriptive attribution) is fundamentally different to parents from controllable/uncontrollable factors (a causal attribution) occurring in an unsuccessful caregiving situation. This distinction may seem counter-intuitive because the belief that a child has little control over his/her behaviour (i.e., "my child could not help acting this way") seems to coincide with causes which are beyond a child's control (e.g., tiredness, illness), and, judging a child as having control over a misbehaviour (i.e., "my child deliberately disobeyed me") naturally suggests controllable causes (e.g., lack of effort to comply). But the lack of shared variance between items is apparent from a careful examination of the differing features of the two attribution scales. First, the context in which control is measured is somewhat different in the two scales. Using the PAT, control is assessed within a shared event -- an interaction in which the adult and the child "did not get along well" rather than in reference to specific misbehaviours committed by an individual child as in the PPQ-2 (Bugental, 1995, personal communication). Secondly, the child involved in the scenarios was a neighbour's child (in the PAT) as opposed to one's own child (in the PPQ-2). These differences invite speculation about the demands each measure makes. Perhaps a "deeper level" of cognitive processing is involved in completing the PAT because parents are required to consider several potential causes of a hypothetical interaction with someone else's child. In contrast, more automatic cognitions may be accessed via the PPQ-2 because, in response to typical noncompliance scenarios with one's own child, parents must only decide if their child had the ability to control a misbehaviour and if they, as parents, had any control over the misbehaviour. Such interpretations likely occur on a daily basis as parents repeatedly access a vast knowledge

base about their children and their own parenting. Additionally, such cognitions may be easily accessed because of the affect which is closely linked to perceptions about one's child, with whom there is a deep emotional bond, and to beliefs about oneself as a parent, a role which is extremely important to most parents.

Perhaps the most surprising finding from the factor analyses was the fact that the PPQ-2 parent control item loaded equally highly on both the parent and child responsibility factors. It appears that parents' perceptions of personal control over child behaviour problems depend in part on how responsible they feel for their child's wrongdoing and how responsible they believe their child is for the misbehaviour. The positive loading of the parent control item on the child responsibility factor makes intuitive sense as it would seem difficult for a parent to view him/herself as having much control over child misbehaviours which are perceived as being beyond the child's own control and responsibility. However, the two responsibility factors do not completely account for what is measured by the parent control item. Subsequent analyses revealed that parent control also reflects other indices of the degree of control which a child has over his/her behaviour; high levels of parent control were more common among parents with older, less hyperactive children -- two characteristics which correspond with a higher level of behavioural control.

Relationship between Low Perceived Control over Failure and Parenting Stress

The second hypothesis concerning the role of parent attributions pertained to the possibility that parents who show a combination of low personal control and high child control causal attributions on the PAT (i.e., low PCF) would experience significantly greater stress than those holding the three other combinations of control attributions, was

not supported. However, as predicted, this subgroup of parents did report higher parenting stress levels than parents within the other attributional subgroups. Although not a statistically significant difference, the ordering of means corresponds with the result reported by Bugental (1995) among a community sample of mothers. The stance of personal helplessness and external blame, which appears to define the low PCF group, has been understood to be a key cognitive component of stressful, coercive cycles which can exist between parents and children (Baden & Howe, 1992).

Attributions in the Prediction of Parenting Stress

The third expectation that parental attributions would predict parenting stress beyond the influence of other key variables was supported. As in study one, parent control beliefs received the strongest support. Even after the contributions of child symptomatology, age, parental depressed mood and causal control attributions to parenting stress were accounted for, the perception that one has little control over one's child's misbehaviours predicted high levels of parenting stress. Clearly, within the population of parents with children displaying high levels of ADHD and ODD behaviours, this type of parental cognition plays a key role in the stress associated with the parenting role.

Additionally, attributions of child responsibility/blame (as measured by the PPQ-2) were found to predict parenting stress, particularly when the measure of this type of attribution was supplemented by the related child control item. Although a nonsignificant zero-order correlation was found between the child responsibility factor and parenting stress (see Table 12), when this factor was entered into the regression equation along with the other PPQ-2 components, it did account for a significant amount of unique variance in

parenting stress. Added to this puzzling inconsistency is the finding that while the attribution variables of parent control and child responsibility predict parenting stress in opposite directions, they are positively correlated ($r = .44$, $p < .001$). It is likely that these results reflect the fact that shared variance among the attributional components was not included in the calculation of the individual regression coefficients. Thus, for the child responsibility factor, only its unique variance was tested and found to predict parenting stress in a positive direction. While previous studies have demonstrated a relationship between child blaming attributions and parental upset or severity of discipline techniques used (e.g., Dix et al., 1989; Scott & Dembo, 1993), this study contains an interesting finding which suggests that high child blame also predicts high levels of general parenting stress (beyond the contribution of other key variables). However, it is difficult to determine the precise meaning of the segment of child responsibility variance which is predictive of parenting stress. Further study of this relationship is clearly warranted.

In contrast, neither the parent control (ACF) nor the child control (CCF) scale of the PAT predicted parenting stress, providing further evidence of the distinctiveness of the attributional concepts measured by the PAT and the PPQ-2. Thus, unlike the suggestion made in the discussion of study one that descriptive and causal parent control items may have the same meaning to parents, the empirical test of this proposition in study two showed that this is clearly not the case. Besides the differences already noted between these measures (causal versus descriptive attributions, effortful versus more automatic processing), the differing structure of these two measures may explain their contrasting associations with parenting stress. The PPQ-2 simply consists of two cohesive factors

(child and parent responsibility) and two separate variables (child and parent control). In spite of the suggestion that the PAT consists of two subscales, it is actually a four-factor measure (as indicated by the exploratory factor analysis in study two and the exploratory and confirmatory factor analyses reported by Bugental, 1995). As such, high control items (both parent- and child-focused) measure something different than the corresponding low control items. Thus, it is misleading, for example, to label all child-focused items "high" or "low", implying that they are opposite ends of the same scale when they do not correlate negatively and load on the same factor. Summing across high and low control items (coded in the negative direction) to create subscales results in two heterogeneous scales which have a limited ability to correlate with other variables due to their lack of reliable, cohesive variance.

The fact that the PAT measures four distinct attributional components raises concern about the suggestion that "controllability" accurately describes the construct underlying these four factors. While low child control items seem to correspond with causes which are truly beyond a child's control (e.g., tiredness, not feeling well, having a bad day), high child control items appear to represent a blaming stance toward a child which does not necessarily coincide with factors over which children have control (e.g., unpleasant disposition, stubbornness)[17]. Identifying a concept which unifies high parent control items is particularly difficult; while using the wrong approach with a child might be something

[17]A subsequent multiple regression analysis was conducted to determine if the high child control component of the PAT would predict parenting stress after controlling for the contribution made by the covariates (child behaviour problems, age and parental depressed mood). High child control accounted for a significant proportion of variance in parenting stress (beta = .24, $p < .01$). Thus, blaming a child for causing a negative event (as measured by the PAT) predicted high parenting stress in a manner similar to the PPQ-2 responsibility/blame factor.

which an adult can control, the other two items (do not enjoy/get along with children) do not appear to be controllable. Poor parenting efficacy may be a better description of the items contained in this factor. Lastly, although the low parent control items do appear to correspond with factors which are difficult for individuals to control (e.g., not feeling well, having a bad day, being in a bad mood), they might also tap a parents' general level of stress. While Bugental et al. (1990) note that the PAT items were designated as controllable or uncontrollable based on mothers' ratings as opposed to experts' judgments, Bugental does not caution researchers against the use of the heterogeneous ACF and CCF subscales. Instead, she and her colleagues (e.g., Bugental et al., 1989) and other researchers (e.g., Grusec et al., 1994) promote and use these scales.

Moderating Effects of Attributional Variables

The moderating effects of child control and parent control detected in study one were not replicated in the present study (Hypothesis 4). Given that child control was not related to parenting stress in the same manner as in study one, the lack of a moderating effect is not surprising. The fact that parent control did not function as a moderator of the relationship between child symptomatology and parenting stress likely speaks to the difficulty replicating a rather subtle effect using a small sample to assess the impact of control. However, the child responsibility factor did moderate the relationship between child ADHD behaviours and parenting stress in these data, indicating that with increasing levels of ADHD symptomatology in their children, parents who make high child responsibility attributions are prone to higher levels of parenting stress than those who make low child responsibility attributions.

General Discussion

The results of these two studies indicate that parent attributions of control and responsibility are important predictors of the stress a parent experiences raising a child with high levels of ADHD symptomatology. The strongest effect was found for the descriptive attribution of parent control -- within both a community and a support group sample of parents, the belief that one has little control over one's child's misbehaviours predicted parenting stress beyond the contribution of ADHD and ODD symptomatology, parental depressed mood, family dysfunction (in study one) and child age (in study two). This finding is consistent with research on personal control within other contexts (e.g., Karasek & Theorell, 1990) and with the concept of learned helplessness (and its associated affective symptoms) (Peterson et al., 1993), a condition which has been described as the result of repeated experiences of lack of control (Taylor, 1995). Additionally, child responsibility attributions showed a tendency to contribute variance to parenting stress such that greater responsibility/blame directed towards children predicted higher levels of parenting stress even after the influence of several other variables was controlled. This relationship supports the association between attributions and affect put forth in Weiner's (1993) theory; the belief that an individual is responsible for a misbehaviour corresponds with negative affect in observers. Or, more accurately stated, this high child responsibility - high parenting stress relationship appears to extend Weiner's theory in that attributions of responsibility are somewhat predictive of general adjustment problems, not simply immediate emotional reactions.

These two studies also revealed that high levels of ADHD and ODD symptomatology in children coincide with considerable psychological adjustment problems in parents and families. In terms of parenting stress, both types of behaviour problems exert influence, independent of each other. In contrast, parental depressed mood is clearly more dependent upon levels of ODD than upon ADHD behaviours, and, ODD symptomatology tends to play a somewhat more primary role in family dysfunction as well. These findings appear to be consistent with the growing view that an environment of parental depression and family discord may play a role in the development and maintenance of child deviance, likely through the mechanism of poor child management behaviours. Such family disturbances, however, tend not to be associated with the presence of ADHD symptomatology in children (e.g., Barkley et al., 1991; Szatmari, Offord, & Boyle, 1989). Nevertheless, the opposite notion, that child oppositionality may breed parental depression, is also plausible and cannot be dismissed on the grounds of these cross-sectional data. Also consistent with other research was the result that, on all parental adjustment indices, subjects in the combined ADHD/ODD subgroup reported the highest levels of difficulty. In spite of the fact that participants' children were not formally diagnosed with ADHD or ODD as part of this study, parental ratings of child behaviour problems yielded results which are similar to those of other research efforts employing a more rigorous diagnostic process.

Critique

Strengths. The strengths of this research involve the fact that two studies employing sound measurement instruments and relatively different samples of parents

yielded similar findings. This successful replication allows greater confidence in the results and in their generalizability to the vast number of mothers and fathers with male and female children/adolescents who display ADHD and ODD symptomatology to varying degrees. Moreover, by studying a community sample of parents (in study one), not only was the referral bias inherent in many studies of the ADHD/ODD population avoided, but also, access was gained to a substantial number of families who are often untouched by treatment and research efforts. The diversity of the study two sample is also clearly a strength -- parents from 10 different Southwestern Ontario communities who had varying degrees of knowledge about ADHD and children of different ages and levels of behaviour problems were included. Additionally, ADHD and ODD child behaviour problems were measured using an instrument which was developed through epidemiological research and which reflects current diagnostic criteria (Boyle et al., 1993) so as to avoid confounding these behaviour categories as has been the case in many previous studies (e.g., Befera & Barkley, 1985; Breen & Barkley, 1988; Cunningham et al., 1988; Mash & Johnston, 1983a). Lastly, the confusion in the literature regarding the comparability of the many control and responsibility attributional concepts was addressed in the second study by carefully distinguishing between the various types of attributions, measuring them in response to standard stimuli, and conducting an exploratory factor analysis.

Methodological Shortcomings. However, some methodological considerations, particularly with regards to the measurement of variables in these two studies, require discussion. Mono-method and mono-source bias, which may have inflated the associations between variables, is clearly an issue for a study employing questionnaires as the sole

means of measurement. In general, without external criteria against which to judge the veracity of parents' self-reports, the degree to which these ratings are distorted by parents' lack of awareness, faulty memories, and self-presentation biases is impossible to assess, and can be quite problematic. However, in this research, parents' biased perceptions were precisely the subject of study. Because parents know how they think about themselves and their children better than anyone else, self-report was viewed as an acceptable, if not ideal method of measurement; the question of whether these perceptions accurately reflect external reality was not germaine to the investigation. Additionally, nuisance, third variable bias, such as that related to social desirability and current negative mood, was reduced by assessing parenting cognitions in the context of everyday events in which a "correct" or desirable perspective was not evident, and by statistically controlling the influence of depressed mood on ratings.

In contrast, parental biases are more problematic with regards to indicators of child symptomatology. The parental reports of child behaviour problems on a given day must be viewed with some caution because a definitive diagnosis of ADHD usually requires additional information (e.g., teacher reports, psychometric test results). Although diagnoses based solely upon parent reports are highly predictive of teacher-based diagnoses (Biederman et al., 1990) and, across the two studies, high scores on the ADHD scale frequently coincided with a previously given diagnosis by a health professional (83% to 95% of the time), participants' children were not involved in a formal diagnostic process as part of the study. Thus, ratings of ADHD and ODD child behaviours must be understood as reflecting parents' (possibly biased) perceptions of the frequency and severity of these

behaviour problems, rather than as indicating a consensually accepted, medical level of impairment.

Written analogue measures of parental attributions are frequently used by researchers (e.g., Baden & Howe, 1992; Dix et al., 1986; Johnston & Patenaude, 1994) likely because they offer relatively uncomplicated data collection and considerable control over child behaviour stimuli. However, this methodology is often criticized for its unproven external validity. To address this criticism, Johnston and Freeman (1997) compared parents' attributional ratings elicited by three stimulus presentation methods: written analogues, videotape presentations and recalled behaviour incidents. The correlations among attributional ratings produced by the three methods showed adequate consistency, particularly for the dimension of child control. The authors concluded that, while written scenarios are less realistic than the other methods, they yield similar findings and have the added advantage of eliminating the confound of incident intensity inherent in situations where a parent's own child's behaviour is used as a stimulus.

A further limitation of these two studies concerns their cross-sectional, correlational design which precludes conclusions regarding causality. In spite of the inability to assess causal relationships, an assumption of unidirectionality is present in the model -- child behaviour problems and parent attributions are believed to be contributors to or causes of parenting stress. While there is some support for the fact that ADHD symptomatology leads to negative reactions in parents (Barkley & Cunningham, 1979; Schachar, Taylor, Wieselberg, Thorley, & Rutter, 1987), ignoring the possible influence of parenting stress on parents' attributions and ascriptions (and possible actual levels) of child behaviour

problems results in an admittedly oversimplified and incomplete model. More sophisticated methodologies, particularly longitudinal and experimental designs are necessary to assess all possible causal relationships.

Directions for Future Research

While the results of these studies contribute to our understanding of the role of parent attributions of control and responsibility in parenting stress, several questions remain which require further investigation. Continued replication efforts of the main findings are an important first step, particularly with regards to the prediction of parenting stress from (a) parental control and from (b) child responsibility/blame attributions. Additionally, a comparison group of parents of non-problem children could be included to assess the extent to which the two samples' mean levels of attributional ratings and the associations between these attributions and parenting stress are unique to parents of children with ADHD. Future efforts to determine whether the conceptual distinction between causal and descriptive attributions of control is empirically defensible could reduce unwanted variance by measuring these attributions in response to the same, rather than to different (i.e., PPQ versus PAT) scenarios. For example, in addition to presenting parents with the PPQ descriptive control items, parents could be asked to identify the cause of the noncompliance incident, and then to rate that cause in terms of child- and self-focused control, a methodology employed by Sobol et al. (1989).

Extending the model to include other key variables is another avenue for future research. For example, the intervening role of parental affect (both felt and expressed) in the relationship between parent attributions and general parenting stress could be explored

in order to gain a more complete picture of the sequence of psychological events which leads to increased parenting stress. Also, insights from the developmental psychology literature would suggest that, in addition to assessing the influence of parent attributions on parental adjustment, the impact of control and responsibility attributions on the quality of parenting behaviour (e.g., disciplinary responses) and on children's emotional (e.g., anger, withdrawal) and behavioural responses (e.g., tendency to comply in the future) are important avenues for future study. Such a comprehensive model would allow a more fine-grained analysis of the learned helplessness syndrome in parents; that is, whether low parent control attributions and corresponding high stress levels lead to subsequent behavioural signs of learned helplessness (e.g., disengagement from child, lack of disciplinary responses) could be investigated.

Clinical Implications

The results of these studies have implications for the assessment and treatment of families with ADHD children. First, a more comprehensive approach to the assessment of these families is clearly warranted. In addition to evaluating levels of ADHD and ODD symptomatology, parent/family functioning (parental depressed mood, parenting stress, family dysfunction) and parents' self- and child-focused attributions (particularly personal control and child responsibility) should be assessed in order to gain a more complete understanding of the variety of difficulties faced by these families and the cognitive resources possessed by help-seeking parents. The inclusion and empirical evaluation of attributional training segments in parenting programs also deserves serious consideration. While attributional interventions have been studied among a variety of clinical populations

(e.g., aggressive boys, college freshmen with poor academic performance, dissatisfied marriage partners) (Baucom & Epstein, 1990; Hudley & Graham, 1993; Wilson & Linville, 1985), clinical outcome research aimed at altering parents' self- and child-centred attributions is still in its infancy. Initial attempts have yielded some desirable effects. For example, Nixon and Singer's (1993) group treatment program was successful in reducing the self-blaming attributions and depression levels of parents with children with developmental disabilities, and Goddard and Miller's (1993) attribution intervention, aimed at decreasing child-blaming perceptions of parents with adolescents, resulted in an increase in nurturance scores. However, these research efforts have yielded only modest effect sizes and have lacked methodological rigour. In future clinical outcome studies, more careful attention must be given to determining the means of successfully altering parents' attributions regarding their children and themselves (e.g., specific cognitive-behavioural techniques). Additionally, measurement of attributions before and after clinical interventions is essential to demonstrating that the intervention did in fact influence parents' attributions and that attributional change was accompanied by changes in parenting stress levels.

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Appendix A

Below are the instructions, scenarios and control items of the Parent Perceptions Questionnaire. Ratings on seven-point scales were made following each analogue. The item anchors are presented beneath each item.

Parent Perceptions Questionnaire

Please imagine yourself and your most difficult to manage child/adolescent in each of the following situations. Then, complete the rating scales below each situation.

Situation #1

You tell your child to stay in his/her chair and wait for dinner. When you glance again at the table, you find that he/she is gone.

Situation #2

You send your child outside to rake the leaves. After a few minutes, you discover that only a small portion of the lawn is raked and your child is riding his/her bike with his/her friend.

Situation #3

Even though you have made it clear that you have something important to say, you notice that your child interrupts you before you finish speaking.

1. How much control did your child have over this misbehaviour?

   ("no control at all over this behaviour" to "total control over this behaviour")

2. How much control do you feel you had over your child's misbehaviour?

   ("no control at all over this behaviour" to "total control over this behaviour")

Appendix B

Below are the instructions and ADHD and ODD symptomatology items from the child behaviour measure of the Ontario Child Health Study. All responses are given on a three-point scale ranging from "never or not true" to "often or always true".

Child Behaviour Questionnaire

Below is a list of statements that describe some of the feelings and behaviour of children. For each statement, please mark the box that best describes your child now or within the past six months. Please mark only one of the three columns for each statement.

1. Can't concentrate, can't pay attention for long. (ADHD)
2. Jumps from one activity to another. (ADHD)
3. Interrupts or butts in on others. (ADHD)
4. Argues a lot with adults. (ODD)
5. Blames others for own mistakes. (ODD)
6. Does dangerous things without thinking. (ADHD)
7. Doesn't seem to listen. (ADHD)
8. Fidgets. (ADHD)
9. Can't stay seated when required to do so. (ADHD)
10. Has difficulty playing quietly. (ADHD)
11. Easily annoyed by others. (ODD)
12. Has difficulty awaiting turn in games or groups. (ADHD)
13. Angry and resentful. (ODD)

14. Temper tantrums or hot temper. (ODD)
15. Talks excessively. (ADHD)
16. Distractible, has trouble sticking to any activity. (ADHD)
17. Interrupts, blurts out answers to questions too soon. (ADHD)
18. Does things that annoy others. (ODD)
19. Loses things. (ADHD)
20. Gets back at people. (ODD)
21. Swearing or obscene language. (ODD)
22. Defiant, talks back to adults. (ODD)
23. Has difficulty following directions or instructions. (ADHD)

Appendix C

Following are the instructions and items from the Centre for Epidimiological Studies - Depression Scale (CESD). All responses are given on a four-point scale ranging from "rarely or none of the time (less than 1 day)" to "most or all of the time (5-7 days)".

The Feeling Questionnaire

The following statements describe some of the ways people feel at different times. Please mark the column which best describes how often you felt or behaved this way DURING THE PAST WEEK.

1. I was bothered by things that usually don't bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family or friends.
4. I felt that I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. I talked less than usual.

14. I felt lonely.

15. People were unfriendly.

16. I enjoyed life.

17. I had crying spells.

18. I felt sad.

19. I felt that people disliked me.

20. I could not "get going".

Appendix D

The following items comprise the Family Functioning Device - Short Form. Participants responded by rating items on a four-point scale from "strongly disagree" to "strongly agree".

Family Questionnaire

Below are some statements about families and family relationships. For each one, mark the column which best describes your family.

1. Planning family activities is difficult because we misunderstand each other.
2. In times of crisis we can turn to each other for support.
3. We cannot talk to each other about sadness we feel.
4. Individuals (in the family) are accepted for what they are.
5. We avoid discussing our fears and concerns.
6. We express feelings to each other.
7. There are lots of bad feelings in our family.
8. We feel accepted for what we are.
9. Making decisions is a problem for our family.
10. We are able to make decisions about how to solve problems.
11. We don't get along well together.
12. We confide in each other.

Appendix E

Parenting Groups Attended by Study Two Participants

Group Location	N	%
Burlington	41	25.9
London	29	18.4
Windsor	19	12.0
London (Learning Disabilities Association)[a]	19	12.0
Cambridge	13	8.2
Halton	10	6.3
Hamilton	7	4.4
Chatham	6	3.8
Simcoe	5	3.2
Oakville	4	2.5
Kitchener-Waterloo	3	1.9

[a]Questionnaires were mailed to this group.

Appendix F

Below are the instructions and items of the Parent Attribution Test. Responses are given on a seven-point scale ranging from "not at all important" to "very important".

Child Interaction Survey

In this questionnaire, we want to know how important you believe different factors might be as potential causes of unsuccessful interactions with children. We are interested in discovering the ways people think about children. Please circle the number which fits best for you. There are no right or wrong answers.

Example: If you were teaching a child an outdoor game and he or she did not catch on very quickly, how important do you believe these possible causes would be:

a. how good he or she is in sports in general

b. how good a teacher you are

c. how difficult the game is

Suppose you took care of a neighbour's child one afternoon, and the two of you did not get along well. How important do you believe the following factors would be as possible reasons for such an experience?

a. how unpleasant a disposition the child had

b. whether the child was tired or not feeling too well

c. whether or not you really enjoy children that much

d. whether or not this was a bad day for the child, e.g., whether there was nothing good on TV, whether it was raining and he/she couldn't go outside

e. whether you used the wrong approach for this child

f. the extent to which the child was stubborn and resisted your efforts

g. how you get along with children in general

h. what kind of mood you were in that day

i. how hungry the child was

j. how little effort the child made to take an interest in what you said or did

k. the extent to which you were not feeling well on that day

l. whether or not this was a bad day for you in general

Appendix G

Scoring for the Child Interaction Survey (Parent Attribution Test)

a. child control (+)

b. child control (-)

c. parent control (+)

d. child control (-)

e. parent control (+)

f. child control (+)

g. parent control (+)

h. parent control (-)

i. child control (-)

j. child control (+)

k. parent control (-)

l. parent control (-)

Items followed by + are scored in a positive direction; items followed by - are scored in a reversed direction to create the Adult Control over Failure and Child Control over Failure subscales.

Appendix H

Below are the instructions, scenarios and the child- and parent-focused items of the Parent Perceptions Questionnaire - 2. Participants rated items using seven-point scales in response to each of the three analogues. The item anchors are presently beneath each item.

Parent Perceptions Questionnaire

Please imagine yourself and your most difficult to manage child/adolescent in each of the following three situations. Then, complete the rating scales below each situation.

Situation #1

You tell your child to stay nearby, for example, in his/her chair, and wait a few moments for dinner. When you glance again at the table, you find that he/she is gone.

Situation #2

You send your child outside to do a chore, such as raking the leaves. After a few minutes, you discover that only a small portion of the lawn is raked and your child is riding his/her bike with his/her friend.

Situation #3

Even though you have made it clear that you have something important to say, you notice that your child interrupts you before you finish speaking.

Child-focused Items

1. How much control did your child have over this misbehaviour?

   ("no control at all over this behaviour" to "total control over this behaviour")

2. How responsible was your child for his/her action?

   ("not at all responsible" to "completely responsible")

3. Did your child act "on purpose" (i.e., intentionally)?

   ("not at all on purpose" to "completely on purpose")

4. Could your child have acted otherwise?

   ("definitely not" to "definitely could have acted otherwise")

5. How much is your child to blame for this behaviour?

   ("not at all to blame" to "completely to blame")

6. How negative was your child's motivation for acting as he/she did?

   ("not at all negative" to "completely negative")

7. Could your child have held him/herself back from acting as he/she did?

   ("definitely not" to "definitely could have held him/herself back")

Item 1 is the child control item; items 2 through 7 are the child responsibility items.

Parent-focused Items

Now, with respect to your own reactions, please tell us:

8. How much control do you feel you had over your child's misbehaviour?

   ("no control at all over this behaviour" to "total control over this behaviour")

9. How responsible are you for the fact that your child behaved contrary to your wishes?

   ("not at all responsible" to "completely responsible")

10. Could you have prevented your child's misbehaviour?

    ("definitely not" to "definitely could have prevented it")

11. How much are you to blame for your child's misbehaviour?

    ("not at all to blame" to "completely to blame")

12. Do you feel that you should have been able to stop your child from behaving as he/she did?

    ("definitely not" to "definitely should have been able to stop him/her")

13. Was your child's misbehaviour due to your own ineffectiveness as a parent?

    ("not at all due my parenting ineffectiveness" to "completely due to my parenting ineffectiveness)

Item 8 is the parent control item; items 9 through 13 are the parent responsibility items.

Appendix I

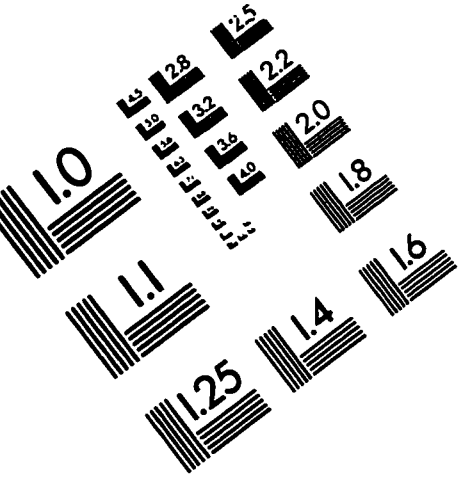
Below are the items used to measure parenting stress in study two. All responses were given seven-point scales. The item anchors are presented following each item.

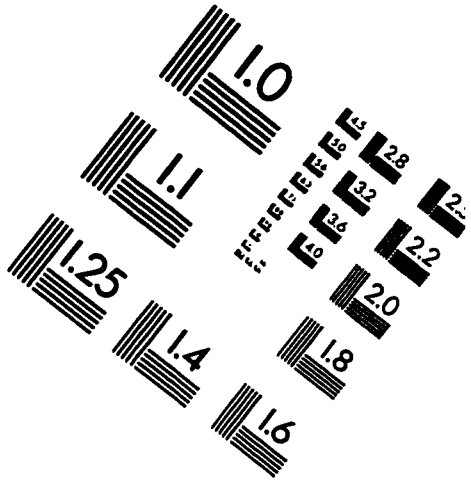
Stress Rating

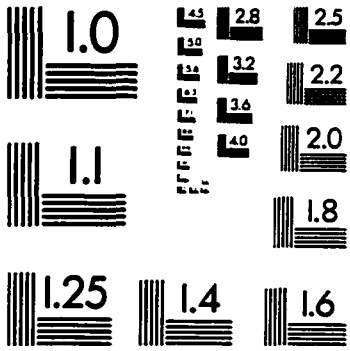
1. In general, how stressful has being a parent of a "behaviourally challenging" child been for you? ("not at all stressful" to "extremely stressful")
2. On a "good day" with your child, how much stress would you experience in your parenting role? ("no stress at all" to "extreme stress")
3. On a "bad day" with your child, how much stress would you experience in your parenting role? ("no stress at all" to "extreme stress")
4. How stressful do you think it would be raising a "typical child" of your child's age? ("not at all stressful" to "extremely stressful")
5. How well do you feel you have coped with the stress of raising your child? ("have not coped well at all" to "have coped extremely well")

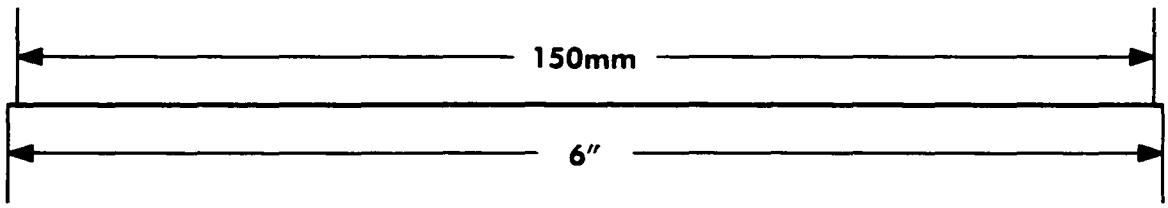
Items 1 and 5 were also used in study one.

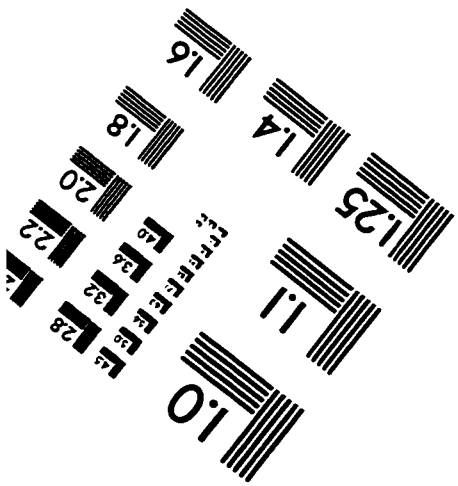
IMAGE EVALUATION
TEST TARGET (QA-3)

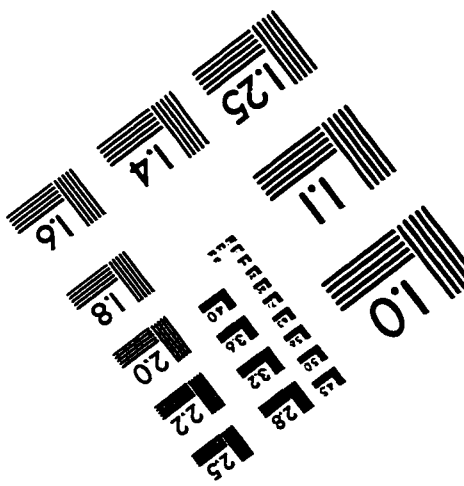












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