

STABLE ATTRIBUTIONS OF CHILD BEHAVIOR AND PARENTING STRESS
IN PARENTS OF ADHD CHILDREN

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The purpose of this study was to explore the differences in how parents of ADHD children and non-ADHD parents attribute undesirable and prosocial child behavior, and to determine if attributions about undesirable child behavior influence parents' perceived levels of parenting stress. Parent attributions from 69 parent-child dyads, half with a child ADHD diagnosis, were measured coding videotaped interactions. Results indicated that parents of ADHD children do not make significantly more stable attributions about undesirable child behavior than non-ADHD parents. Additionally, compared to non-ADHD parents, parents of ADHD children did not make significantly more unstable attributions about their children's prosocial behaviors. Regarding parenting stress, individuals who generated higher frequencies of stable attributions also appeared to maintain more negative views of their children's behaviors in comparison to other children.

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CHAPTER ONE

INTRODUCTION: PARENTING STRESS AND ATTRIBUTIONS IN ADHD PARENTS

Review of the Literature

Child-rearing is not an easy task. The average, daily responsibilities that accompany parenting elicit considerable stress in many adults (Cox, Owen, Lewis, & Henderson, 1989). Parent stress may be conceptualized as a multi-faceted construct comprised of cognitive, behavioral, and affective features (Mash & Johnston, 1990). Although all parents probably experience stress related to their children from time to time, parents of children with special needs appear to encounter significantly more child-related stress. Research shows that children with medical problems (Hoekstra-Weebers, Josette, & Jaspers, 1998), developmental disabilities (Baxter, Cummins, & Yiolitis, 2000; Rodriquez, Morgan, & Geoffken, 1990), and physical disabilities (Lemanek, Jones, & Lieberman, 2000) are some of the special needs groups associated with higher stress in parents. These higher rates of parenting stress are often connected to more negative attitudes about parenting (Donenberg & Baker, 1993) and more dysfunctional parent behavior (Peterson & Hawley, 1998), including higher rates of potential child abuse (Lahey, Conger, Atkeson, and Treiber, 1984; Rodriguez & Murphy, 1997). Parents of another special needs group who also experience high levels of stress and dysfunctional parent behaviors are parents of children with Attention Deficit/Hyperactivity Disorder (ADHD; Mash & Johnston, 1983).

ADHD is a neurobiological disorder (Swanson, Castellanos, Murias, LaHoste, & Kennedy, 1998) affecting approximately 3% to 9% of elementary school children. Children with ADHD often have difficulty paying attention to details, remaining focused on tasks, delaying gratification, and controlling motor activity (American Psychiatric Association [APA], 1994). The presence of ADHD in children potentially has considerable impact on families throughout childhood and adolescence, and even into adulthood. During the childhood years, struggles around compliance to household rules are a daily problem in many ADHD families (Sobol, Ashbourne, Earn, & Cunningham, 1989). Not only do ADHD children tend to engage in non-compliant behaviors more often than non-ADHD children do, when they are compliant, they may only maintain the positive behavior for a brief period of time (Wells et al., 2000). In return, lack of child compliance has been demonstrated to result in parents either giving up their discipline efforts (Sobol et al., 1989) or developing automatic, almost reflexive, responses to negative child behavior (Mash & Johnston, 1990). As ADHD children approach adolescence, their general functioning appears to further deteriorate (Biederman, 1998). Symptoms of chronic restlessness, peer rejection, and poor academic performance will persist through adolescence for 7 out of 10 children diagnosed with ADHD (Klein & Mannuzza, 1991). The potential for problems such as these to negatively affect families is great (Mash & Johnston, 1990). In general, families of ADHD children exhibit greater family dysfunction than those without ADHD children (Bromley-Little, 1998). Research indicates that undesirable child behaviors not only contribute to stressful interactions between parents and children (Mash & Johnston, 1983), but that the influence of these interactions is bi-directional (Biederman et al., 1995).

Stress from parenting ADHD children may affect a variety of parent characteristics and behaviors. First, both the physical and emotional health of parents may be negatively influenced (Anastopoulos, Guevremont, Shelton, & DuPaul, 1992; Johnston, 1996). Research suggests that parents of ADHD children may experience higher rates of depression (Mash & Johnston, 1983), have less nurturing parent attitudes (Peterson & Hawley, 1998), and find their parenting role less satisfying than parents of non-ADHD children (Johnston, 1996; Mash & Johnston, 1983). They may also tend to recall past, and experience current, negative child behaviors with more negative affect than the parents of non-ADHD children do (Johnston & Freeman, 1997; Johnston & Patenaude, 1994). Second, higher rates of stress in ADHD parents are associated with some negative parenting behaviors (Johnston, 1996), such as greater child-controlling behavior (Peterson & Hawley, 1998). Additionally, stress in parents may lead to poorer quality interactions between parents and their children. Some researchers have reported significant correlations between increased parental stress and negative parent-child interactions (Anastopoulos, et al., 1992; McKay & Pickens, 1996). Furthermore, parents of ADHD children may develop greater intolerance toward their children, particularly as experience with negative child behavior increases (Johnston & Patenaude, 1994). Finally, the stress from parenting ADHD children may also affect areas of parents' lives that seem independent of their children. For instance, ADHD parenting distress is related to poorer marital adjustment, lower self-esteem, increased self-blame, and greater social isolation (Johnston, 1996; Mash & Johnston, 1983).

Research supports the notion that people's experiences of stress are related to the explanations they make about stress-inducing elements in the environment (Amirkhan,

1998; Weiner, 1985). Traditional attribution theories that describe this phenomenon of explanation seeking often include the following three dimensions of event explanation: locus of causality, stability, and controllability (Weiner, 1985). The first dimension, locus of causality, indicates the location of the cause (Roesch & Weiner, 2001) and may be assigned to factors either internal or external to an individual (Chandler & Lee, 1997). For instance, a parent may explain a child's undesirable behavior as a product of the parent's poor parenting skills, which would be an attribution internal to the parent. On the other hand, a parent might externally attribute a child's undesirable behavior by explaining that the child's undesirable behavior is the result of poor influence from friends. Research has demonstrated that locus of causality is related to certain emotional reactions to events (Weiner, Russell, & Lerman, 1978). Specifically, this evidence suggests that internal attributions of negative events are likely to produce feelings of guilt or shame, whereas internal attributions of positive events are likely to produce a sense of pride or competence.

The dimension of stability describes the degree of permanence in the explanation (Amirkhan, 1998; Weiner, 1985). For example, a parent might make an unstable attribution for a child's noncompliance by stating, "She does not usually disobey me. She must be tired." A stable attribution, however, might be, "This is the way she is all the time." The stability of an attribution is related to expectations about future events and their corresponding affective response (Weiner, 1985). Some studies indicate that the tendency to make stable attributions for negative experiences is associated with higher anticipation for future negative outcomes (Amirkhan, 1998; Weiner, 1985). Furthermore,

individuals that make more stable attributions in negative situations are more likely to experience depression and hopelessness (Stiensmeier-Pelster, 1989).

The dimension of controllability may be defined as the perceived level of control over an event (Weiner, 1985). An illustration of an uncontrollable attribution is the parent who states, "I have tried everything, but I cannot do anything about his poor behavior", in reaction to a child's misbehavior. Conversely, a parent making a controllable attribution about a child's misbehavior might state, "He is only misbehaving because I have not specifically told him how I want him to behave." Individuals who make controllable attributions about negative events are more likely to persevere when faced with similar circumstance in the future (Amirkhan, 1998). When the three dimensions of attribution are group together for analysis, they possess even more predictive power (Amirkhan, 1998). For example, the combination of external, stable, and uncontrollable attributions for negative events is strongly correlated to avoidant coping styles (Amirkhan, 1998; Roesch & Weiner, 2001). In addition, uncontrollable and stable attributions about negative events predict a greater sense of helplessness in individuals faced with similar situations in the future (Weiner, 1985).

One of the obstacles to reviewing the literature on attributions and stress is that not all studies include the same dimensions of event explanation. Substantial research already exists supporting the dimension of stability as related to stress (e.g., Jackson, Sellers, & Peterson, 2000; Stiensmeier-Pelster, 1989; Wong & Weiner, 1981); however, controllability is often left out of attributional research on stress (Amirkhan, 1998). At least one study, though, does indicate that controllability is also related to perceived levels of stress (Bromley-Little, 1998). In fact, some evidence suggests that the

combinations of stable and uncontrollable attributions about negative events are more predictive of elevations in stress than either variable considered singly (Amirkhan, 1998). In addition, even though experiencing a negative event can produce short-term stress outside the influence of attributions, longer termed stress seems to be the product of the negative event combined with a negative attribution pattern (i.e., any combination of external, stable, and uncontrollable attributions for negative events; Wong & Weiner, 1981). Parents of ADHD appear to display more of these combined stable and uncontrollable attributions about negative events related to their children's misbehavior than parents of non-ADHD children (Johnston, Reynolds, Freeman, & Geller, 1998).

Parents potentially may produce a complex web of attributions about their children's behaviors. At times, they may attribute negative child behaviors to parent-centered characteristics, like poor parenting skills. At others, they may make more child-centered attributions (Joiner & Wagner, 1996), such as attributing undesirable child behavior to the child's immaturity. Both types may be spontaneously verbalized (Johnston et al., 1998) in a variety of situations; however, negative experiences tend to receive more attention than positive ones (Zautra & Reich, 1983). Research suggests that parents of ADHD children, in particular, make more spontaneous comments about negative child behaviors than do parents of children without ADHD. One possible explanation for this characteristic may be that parents of ADHD children are typically less attentive to positive behaviors in their children (Cunningham & Barkley, 1979). They also are more inclined to make more stable and uncontrollable attributions about negative child behavior (Johnston et al., 1998). Research indicates that patterns of stable and uncontrollable attributions for negative events, possibly like undesirable child behavior,

are correlated with experiences of high stress (Amirkhan, 1998). The tendency of these parents to make internal, stable, and uncontrollable attributions seems logical when the neurobiological basis of ADHD is considered. ADHD behaviors originate from frontal lobe deficits (internal), which are chronic (stable), and outside the parent's ability to cure (uncontrollable). When ADHD children exhibit prosocial and compliant behavior, their parents tend to make unstable attributions about the positive behavior (Sobol et al., 1989).

Statement of the Problem

Parental attributions can significantly contribute to stress from parent-child interactions (Mash & Johnston, 1990). Even though parental attributions of ADHD behaviors as internal, unstable, and uncontrollable appears reasonable considering the apparent neurobiological etiology of the disorder, ADHD parents are still equally or more upset by negative child behavior than parents of non-ADHD children (Johnston & Freeman, 1997). Maternal stress, in particular, is linked to negative perceptions of child behavior (Mash & Johnston, 1983). Although many studies have focused on either the relationships between parenting ADHD children and parent stress (Baker, Heller, & Henker, 2000; Johnston, 1996; Mash & Johnston, 1990; Podolski & Nigg, 2001; Wells et al., 2000) or between ADHD-related child behavior and parent attributions (Gretarsson & Gelfand, 1988; Johnston & Freeman, 1997; Johnston & Patenaude, 1994; Sobol et al., 1989), only one has examined the relationships between attributions generated by ADHD parents and levels of parenting stress (Bromley-Little, 1998). Research results, however, suggest that the attribution patterns of ADHD parents about negative child behaviors (Gretarsson & Gelfand, 1988) may be similar to those related to higher rates of depression (Steinsmeier-Pelster, 1989) and hopelessness (Weiner, 1985). The limited

research available on this topic does support a relationship between the attributional dimension of control and stress in parents of ADHD children. Specifically, Bromley-Little (1998) examined the relationship between control attributions and stress in parent of children with ADHD. This study employed written analogue measures to assess parental attributions of controllability, which were then compared to perceived levels of parental stress. The results supported Bromley-Little's hypothesis that parent perceptions of undesirable child behavior as uncontrollable is predictive of higher levels of parenting stress. A limitation of this research, however, is the use of written analogue measures for assessing parental attributions, which have been criticized for being less ecologically valid than actual parent-child interactions (Johnston & Freeman, 1997). Due to the absence of literature on the relationship between attributions generated by ADHD parents and levels of parenting stress, questions remain about how these characteristics might interact with one another, especially in the context of live parent-child interaction.

Hypotheses

The present study proposes to use analogue observation methodology to test the following hypotheses regarding relationships between parent attributions of their ADHD children's behaviors and levels of parenting stress. Specific hypotheses are:

Hypothesis 1

Parents of ADHD children will attribute their children's undesirable behaviors as stable and unable to be controlled by the parent significantly more often than will control parents. More specifically, it is expected that the percentage of stable and undesirable attributions made for undesirable child behavior will be higher for parents of ADHD children than for parents of non-ADHD children.

Hypothesis 2

Among ADHD parents, the more often stable and uncontrollable attributions are made for undesirable child behavior, the higher the parent's perceived level of stress will be, independent of the severity of the child's ADHD symptoms.

Hypothesis 3

Parents of ADHD children will make significantly more unstable attributions about their children's prosocial behaviors than will the parents of non-ADHD children.

Exploratory Hypothesis 4

Research suggests that both negative attributional styles (Luten, Ralph, & Mineka, 1997) and chronic parenting stress (Naerde, Tambs, Mathiesen, Dalgard, & Samuelsen, 2000) are correlated with parental symptoms of depression. Exploratory analysis will be conducted in this study to separate the influences of stress and depression on parental attribution patterns. It is predicted that parental stress will uniquely contribute to the prediction of stable and uncontrollable attributions of undesirable child behavior, independent of parental symptoms of depression.

CHAPTER TWO

METHODS

Participants

The sample was comprised of 69 parent-child dyads from the Dallas-Ft. Worth metroplex. The parents (87% mothers, 10% fathers, and 3% grandmothers) ranged in age from 24 years to 58 years ($M = 39.59$; $SD = 6.92$). The majority of parents were Caucasian ($n = 58$), but African-American parents ($n = 3$) and Hispanic parents ($n = 6$) also volunteered for the study. Approximately 95% of the parents had completed at least a high school education, and almost 38% held a bachelor's degree. The average income was between \$50,000-\$60,000 per year. Descriptive data for parents are summarized in Tables 1 and 2.

The children (23% female and 77% male) ranged in age from 4 years to 11 years ($M = 8.06$; $SD = 1.49$). Approximately 55% of the children ($n = 38$) had received an ADHD diagnosis from a professional prior to participation in the study. The majority of children were Caucasian ($n = 55$), but African-American children ($n = 3$), Hispanic children ($n = 3$), and biracial children ($n = 4$) also participated. All of the children, with the exception of two children in preschool and three children who were home-schooled, were enrolled in elementary school. Descriptive data for children are summarized in Table 3.

Table 1

Parent Characteristics (N = 69)

Characteristics	ADHD Group				non-ADHD Group				<i>t</i>	X^2	<i>p</i>
	<i>N</i>	%	<i>M</i>	<i>SD</i>	<i>N</i>	%	<i>M</i>	<i>SD</i>			
Gender	-	-	-	-	-	-	-	-	-	.851	.653
Male	5	13.5	-	-	28	90.3	-	-	-	-	-
Female	31	83.8	-	-	2	6.50	-	-	-	-	-
Age	-	-	40.84	7.28	-	-	38.61	6.47	1.352	-	.181
Ethnicity	-	-	-	-	-	-	-	-	-	3.654	.455
Caucasian	32	86.5	-	-	26	83.87	-	-	-	-	-
African-American	1	1.35	-	-	2	6.45	-	-	-	-	-
Hispanic	4	10.80	-	-	2	6.45	-	-	-	-	-
Asian-American	0	0	-	-	1	3.23	-	-	-	-	-
Other	1	1.35	-	-	0	0	-	-	-	-	-
Yearly income	-	-	-	-	-	-	-	-	-	6.476	.485
\$10,000-\$30,000	6	15.79	-	-	8	25.80	-	-	-	-	-
\$30,000-\$50,000	11	28.95	-	-	4	13.00	-	-	-	-	-
\$50,000-\$70,000	7	18.42	-	-	6	19.4	-	-	-	-	-

Table 2

Parent Characteristics (N = 69), continued.

Characteristics	ADHD Group				non-ADHD Group				<i>t</i>	<i>X</i> ²	<i>p</i>
	<i>N</i>	%	<i>M</i>	<i>SD</i>	<i>N</i>	%	<i>M</i>	<i>SD</i>			
Income											
\$70,000 - \$100,000	7	18.42	-	-	6	19.4	-	-	-	-	-
\$100,000+	7	18.42	-	-	7	22.6	-	-	-	-	-
Education	-	-	-	-	-	-	-	-	-	1.456	.918
High school	10	26.31	-	-	9	30.00	-	-	-	-	-
Technical school	3	7.89	-	-	1	3.33	-	-	-	-	-
Community college	4	10.53	-	-	5	16.67	-	-	-	-	-
University degree	14	26.84	-	-	12	40.00	-	-	-	-	-
Some advance degree	5	13.16	-	-	3	10.00	-	-	-	-	-
Other	2	5.26	-	-	1	3.33	-	-	-	-	-
PSI scores	-	-	88.81	21.24	-	-	66.9	18.4	-	-	-
ADHD:HV-IV scores	-	-	19.35	6.77	-	-	5.9	6.1	-	-	-
BDI scores	-	-	10.97	8.45	-	-	7.1	8.9	-	-	-
Stable attributions for undesirable behavior	-	-	53.72	43.42	-	-	36.61	47.98	1.735	-	.088
Unstable attributions for prosocial behavior	-	-	21.62	41.73	-	-	18.68	37.65	.647	-	.520

Table 3

Child Characteristics (N = 69)

Characteristics	ADHD Group				non ADHD Group				<i>t</i>	<i>X</i> ²	<i>p</i>
	<i>N</i>	%	<i>M</i>	<i>SD</i>	<i>N</i>	%	<i>M</i>	<i>SD</i>			
Gender	-	-	-	-	-	-	-	-	-	.217	.642
Male	30	73.3	-	-	23	74.2	-	-	-	-	-
Female	8	26.7	-	-	8	25.8	-	-	-	-	-
Age	-	-	8.82	1.54	-	-	8.14	1.35	.775	-	.382
Ethnicity	-	-	-	-	-	-	-	-	-	5.64	.343
Caucasian	31	81.58	-	-	25	80.65	-	-	-	-	-
African-American	1	2.63	-	-	2	6.45	-	-	-	-	-
Hispanic	1	2.63	-	-	2	6.45	-	-	-	-	-
Asian-American	0	0	-	-	1	3.19	-	-	-	-	-
Other	5	13.16	-	-	1	3.19	-	-	-	-	-

Measures

Demographic Questionnaire

All participating parents completed the “Demographic Information and History Form”. This form was originally created for use in a larger study, and some of the information gathered from it was not applied in this study. The data that was examined includes parent and child age, gender, ethnicity, education level, and socioeconomic status.

Measures to verify ADHD diagnoses

Attention Deficit/Hyperactivity Disorder (ADHD) symptoms of children in the experimental group was confirmed using the ADHD Rating Scale-IV: Home Version (ADHD-RS-IV: HV; DuPaul, Power, Anastopoulos, & Reid, 1998). The participating guardian of each child completed the ADHD-RS-IV: HV. This scale consists of 18 items describing child behavior consistent with the ADHD diagnostic criteria in the DSM-IV (APA, 1994). Guardians were instructed to rate the frequency of their child’s behavior at home over the last six months on a 4-point Likert scale (“0 = never or rarely,” “1 = sometimes,” “2 = often,” “3 = very often”) when the child is not on stimulant medication. The ADHD-RS-IV: HV includes two 9-items subscales, the Hyperactivity-Impulsivity subscale and the Inattention subscale; however, this study only used the Total Scale score converted into a percentile as an estimate of ADHD symptoms.

The overall reliability and validity of the ADHD-RS-IV: HV is adequate. Internal consistency for the three scales ranged from $\alpha = .86$ to $.92$. To establish validity, the ADHD-RS-IV: HV was compared to other measures for assessing ADHD symptoms. Research found high correlations between the Hyperactivity-Impulsivity subscale of the

ADHD-RS-IV: HV and the Conners Parenting Rating Scale – Revised (CPRS; Conners, 1989) Hyperactivity Index, the CPRS Impulsivity-Hyperactivity subscale, and the CPRS Conduct Problems subscale, ranging from $r = .65$ to $.81$. The ADHD-RS-IV: HV Inattention subscale and the CPRS Learning Problems subscale correlated at $r = .66$. Other research has demonstrated that parent ratings on the ADHD-RS-IV: HV can distinguish between children with ADHD and clinic-referred children without ADHD (DuPaul et al., 1998).

Measure of Parenting Stress

Parental Stress was measured with the Parenting Stress Index/Short Form (PSI/SF; Abidin, 1990). This 36-item instrument measures stress related to parent factors, child factors, and parent-child interaction factors. Parents responded to the items on a five-point scale according to their degree of agreement (strongly agree, agree, not sure, disagree, strongly disagree) with the items. The resulting three subscales, Parent Distress, Difficult Child, and Parent-Child Dysfunctional Interaction, are combined to yield a Total Stress score. Higher scores indicate higher levels of perceived parental distress. The dimensions measured by the PSI/SF align well with the constructs of this study. The Difficult Child subscale measures parents' evaluations of their children, including thoughts and beliefs about how their children behave relative to other children. The Parent-Child Dysfunction Interaction subscale measures the degree of parental distress resulting from negative parent-child interaction. Total Stress scores were used in this study as an estimate of perceived parental stress.

The overall reliability and validity of the PSI/SF are very good. Internal consistency for the three subscales scales and the total items ranged from $\alpha = .80$ to $.91$.

The PSI/SF was compared to the full length Parenting Stress Index (PSI; Abidin, 1990) to confirm the validity of the shorter form. The PSI/SF and full length PSI correlated at $r = .95$. Extensive research has shown demonstrated the validity of the full length PSI by comparing it to numerous established stress and stress-related measures. In turn, the correlations between the full length PSI and other stress-related measures may be taken as evidence for the construct validity of the PSI/SF (Abidin, 1990).

Measure of Parent Symptoms of Depression

Parent symptoms of depression were measured with the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is designed to assess symptoms of depression that correspond to criteria for diagnosing depressive disorders in the DSM-IV (APA, 1994). The scale consists of 21 items that can be rated on a 4-pt Likert scale to indicate how intensely an individual experiences a symptom. The instrument is scored by summing the ratings across all the items, resulting in a maximum score of 63.

The overall reliability and validity of the BDI-II is sound. Internal consistency in both clinical and non-clinical populations ranges from $\alpha = .79$ to $.90$. Evidence for discriminant suggests that the BDI-II is effective in detecting diagnosable depression in a variety of populations. Research to support the construct validity of the BDI-II has compared the instrument to others measuring similar constructs. The resulting correlations range from $r = .35$ to $.85$. The lower correlations typically result from comparisons between the BDI-II and instruments measuring constructs only moderately similar to the constructs represented by BDI-II items, while the higher correlations are

with instruments more closely related to depression assessment (Beck, Steer, & Brown, 1996).

Measure of Parent Attributions

Measurements of parent attributions of child ADHD behaviors were gathered from videotaped parent-child dyads participating in the Parent-Child Interaction Assessment (PCIA; Holigrocki, Frieswyk, Kaminski, & Hough, 1999; Holigrocki, Kaminski, & Frieswyk, 1999). The PCIA is a fifty-minute procedure in which parent and child pairs interact under semi-structured circumstances. Parent-child dyads begin the PCIA seated at a table with an established set of toys, including plastic zoo animals, blocks, people figures, and wooden toy logs. An administrator then gives brief instructions about the interaction activities. The first segment is a free-play in that the parent and child can choose their own activities. This scenario, like the next seventeen scenarios, are videotaped and timed to last ninety seconds. Following the free-play scenario, the researcher provides the dyad with the first of fifteen scenarios during which the parent and child are instructed to play out a story about a trip to the zoo. Each of the fifteen scenarios begins and ends in the same pattern, with the administrator setting up the initial storyline, allowing ninety seconds of interaction, and concluding the segment by asking the dyad to return the figures. The fifteen scenarios are created to position dyads for interactions involving competition, compromise, parental discipline, child compliance, and conflicting desires. After concluding the interactive scenarios, the parent and child are asked to clean up the zoo toys together. Two Inquiry segments follow the PCIA, one with the child and one with the parent. During Inquiry, the participant is shown the first half of two of the scenarios. Each is asked questions about their thoughts,

feelings, desires, as well as the other person's thoughts, feelings and desires, during the viewed segment. For more details about the PCIA, see Holigrocki, Frieswyk, et al. (1999) and Holigrocki, Kaminski, et al. (1999).

Parental attributions were evaluated using the Parent Attribution (PA) codes from the Observational Coding System for Parent Child Interactions (Kaminski et al., 2002; see Appendix A). There are two PA codes, Stability and Controllability. Under the Stability code, stable attributions are defined as statements about child behavior that include terms such as "always", "never", "usually", and "rarely" or otherwise indicate that the present behavior is common to the child. An example of a stable attribution made by a parent is, "John never pays attention to what I am saying." Unstable attributions are defined as statements about child behavior that include language such as "sometimes" and "occasionally" or otherwise indicate the present behavior is not common to the child. An example of an unstable attribution is, "Sometimes John does not pay attention to what I am saying."

Regarding the Controllability Code, controllable attributions are defined as parent statements describing a parent's behavior as changing or having influence on a child's behavior. An example of a controllable attribution is, "John was acting up because I did not remind him to behave." Uncontrollable attributions are defined as parent statements describing a parent's behavior as having no or little influence a child's behavior. An example of an uncontrollable attribution is, "When John gets like that, there is nothing I can do."

For every attributional statement coded, the type of child behavior involved in the attribution is also coded as either Prosocial or Undesirable. Prosocial behavior is defined

as instances of child compliance, cooperation, or other positive response to the parent or parent figure. Undesirable behavior includes instances of child non-compliance, lack of cooperation, or other negative response to the parent or parent figure.

Two independent coders, who are blind to the participant group status, assessed seven scenarios from the PCIA videotapes (“Waiting”, “High Rock”, “Lost Child”, “Seesaw”, “Gift Shop”, “Lost Toy”, and “Clean-up) and Parent Inquiry segments for stable vs. unstable and controllable vs. uncontrollable attributions by the parents. The scenarios were chosen based on their potential to evoke undesirable child behavior. Inquiry was selected because parents rationally make attributions about their child’s behavior as they review the videotaped interactions between themselves and their children.

The coded data for each tape were transformed into percentages for statistical analysis. Attribution codes for prosocial behavior and Undesirable behavior were tallied separately. The percentages were created by dividing the number of times a particular attribution code occurs for a behavior type (i.e. prosocial vs. undesirable behavior) by the total number of attributions made for that behavior type. For example, a percentage of .33 will result from the occurrence of three stable attribution codes out of a total of nine attributions made about undesirable behaviors.

Procedures

Parents responding by phone to community advertisements for the research study were informed about details of the study. Although random assignment of the study’s independent variables was not possible, efforts still were made to match control dyads with ADHD dyads based on parent and child gender, as well as child age. During the

initial phone contact and reminder call, parents of ADHD children were informed of the need to delay their children's morning doses of stimulant medication on the day of their appointments. They were requested to bring the medication to the appointment instead. Upon arrival at the University of North Texas, either a graduate or an undergraduate researcher explained informed consent to the parents and children (see Appendix B for more details on the informed consent). Only one researcher would have been aware of a child's ADHD status. That researcher would have been responsible for instructing the parents to administer ADHD medication to their children just before beginning the PCIA, but would not have been directly involved with data collection from that dyad. Next, either a trained graduate or undergraduate researcher administered the PCIA to parent-child dyads. Following completion of the PCIA and Inquiry, parents were taken to a separate room to complete a battery of questionnaires, including Demographic Information and History form, the ADHD-RS: HV, the CBCL/4-18, the PSI/SF, and the BDI-II. When the parents finished the paper work, a graduate student reviewed a debriefing statement with the parents and arranged payment for their participation. Parent and child dyads were paid \$10 per hour of participation in the study.

CHAPTER TWO

RESULTS

The Attention Deficit/Hyperactivity Disorder (ADHD) status of each child, as reported by the parents, was compared to the corresponding total scores on the ADHD Rating Scale-IV: Home Version (ADHD-RS-IV: HV) in order to confirm the diagnosis. The cut-off chosen for confirmation of a positive identification of ADHD was set at the 75th percentile. This relatively low cut-off score was chosen because all participating ADHD children had already been diagnosed by a medical or mental health professional. In addition, to be sure that undiagnosed ADHD children were not inadvertently admitted to the control group, control group children who scored above the 75th percentile on the ADHD-RS-IV: HV were excluded from the study. Three dyads, one from the control group and two from the ADHD group, were removed from the original sample ($n = 72$) due to mismatches between reported diagnoses and scores on the ADHD-RS-IV: HV.

Various analyses were run on the ADHD and non-ADHD groups for significant differences in demographic characteristics. Chi-square analyses revealed that the ADHD and non-ADHD groups did not differ significantly by gender of parents ($X^2_{(1)} = .851, p = .653$) and children ($X^2_{(1)} = .217, p = .642$), ethnicity of parents ($X^2_{(4)} = 3.654, p = .455$) and children ($X^2_{(1)} = .5636, p = .343$), or education of parents ($X^2_{(1)} = 1.456, p = .918$) and children ($X^2_{(1)} = 6.642, p = .704$). The two groups also did not differ significantly by

ages of parents ($t_{(67)} = 1.352, p = .181$) or children ($t_{(67)} = .775, p = .382$). Refer to Tables 1 - 3 for complete details.

The distributional characteristics of all variables (i.e. ADHD-RS-IV: HV score, Parenting Stress Index/Short Form (PSI/SF) score, Beck's Depression Inventory (BDI) score, and attribution ratios) were examined to ensure that the variables met the assumption of normality required for later analyses. The results of the Kolmogorov-Smirnov tests suggested that only PSI/SF scores were normally distributed for the sample ($max-D = .089, p = .200$). Distributional characteristics for the remaining variables were reexamined by ADHD status to determine whether violations of normality were an artifact of distributions unique to the separate groups. Kolmogorov-Smirnov test results indicated that assumption of normality was more closely met following the separation of ADHD and non-ADHD dyads for ADHD-RS-IV: HV scores (ADHD group: $max-D = .149, p = .032$; non-ADHD group: $max-D = .190, p = .006$) and BDI scores (ADHD group: $max-D = .160, p = .015$; non-ADHD group: $max-D = .235, p < .001$). Distributions of attributions, however, still violated the assumption of normality (stable attributions for undesirable behavior: $max-D = .226, p < .001$; Uncontrollable attributions for undesirable behavior: $max-D = .484, p < .001$; unstable attributions for prosocial behavior: $max-D = .511, p < .001$).

To provide a more normal distribution for analyses of the attributions, a combined score was assigned to each subject by calculating the difference between the number of stable attributions and unstable attribution made during taping. Attributions for prosocial behavior and those for undesirable behavior were tallied separately. For instance, a parent who made five stable attributions and three unstable attributions for undesirable behavior

would receive a combined score of two. Negative scores indicate that an individual generate more unstable attributions than stable attributions, while the opposite is true for positive scores. Analyses were completed a second time using the new attribution scores.

In addition to descriptive data analyses, a correlational matrix was computed to determine if the predicting variables met the assumption of dependent measure correlation required for MANOVAs. Results of the Pearson Product Correlations suggest that the variables of stable and uncontrollable attributions for undesirable child behavior were not correlated ($r = -.004$). This low correlation may result from the extremely low frequency of uncontrollable attributions throughout the sample. Out of 69 subjects, only six made spontaneous attributions about controllability. Therefore, the variable for uncontrollable attributions was removed from further analysis.

The first hypothesis predicted that parents of ADHD children would make more stable and uncontrollable attributions for negative child behavior than would non-ADHD parents. With the removal of controllability, a MANOVA was no longer an appropriate means of analysis. An independent-samples t-test was run to test for significant differences between stable attribution ratios for undesirable behavior in the ADHD sample ($M = 52.32$; $SD = 43.71$) and the non-ADHD sample ($M = 3.39$; $SD = 46.92$). According to Ntoumanis, (2001) four assumptions should be met before the data may be confidently interpreted. The first requires that the data be parametric. As the data is presented in the form of ratios, this assumption is fulfilled. The second assumption requires that the samples be randomly selected from the populations. The methods of recruitment fulfill this requirement, although some elements of subject self-selection may have influenced the sampling. The third assumption involves homogeneity of variance. In

other words, the samples must come from populations with equal variances. According to the Levene's test, the two groups are homogeneous ($F = .571, p = .453$) and equal variance may be assumed. The final assumption deals with the normality of the data. As stated previously, Kolomogorov-Smirnov tests run on the attribution ratios indicate that the distributions of these samples were not normal. However, as the t-test is robust to violations of the assumption of normality, the analysis of variance was continued.

Results of the independent-sample t test indicated that ADHD parents do not make significantly more unstable attributions about undesirable behavior than do non-ADHD parents ($t_{(63)} = 1.731, p = .088$). Power for this test was poor (power = .40), as there was only a 40% chance of finding a significant difference given that one exists. However, the small to moderate effect size ($\eta = .207$) suggests that there is some degree of practical application of the results in the real world.

The second hypothesis proposed that parents who made more stable and uncontrollable attributions about negative child behaviors would experience higher levels of parenting stress, regardless of the severity of a child's ADHD symptoms. A hierarchical multiple regression was selected to analyze the degree of relationship among attributions and parenting stress. Originally, ADHD symptom severity was to be entered as the first predictor entered into analysis, and degree of uncontrollability and stability in parental attributions as the second and third predictors. Due to the limitations described earlier of the variable for uncontrollable attributions, this variable was removed from the calculation. Thus, the prediction became that stable attributions for undesirable child behavior would account for a significant, additional amount of variance in parental stress even after accounting for ADHD symptom severity.

Tabachnick and Fidell (1996) outline several assumptions which should be considered before performing regression analyses. The first assumption suggests that the ratio between participants and predictors should be at least 5:1; the ratio between subjects and predictors for this analysis is 69:2. The second assumption involves multicollinearity. The assumption of multicollinearity requires that the predicting variables should not be highly correlated ($r > .90$). If predicting variables are too highly correlated, then they are more likely to be measuring the same construct, and thus be redundant components in a regression equation. At the same time, the predictors should not be so poorly correlated that joint prediction is made impossible. ADHD-IV: HV scores and ratios of stable attributions for undesirable child behavior were found to correlate at $r = .135$, fulfilling the assumption of multicollinearity and yet having too low a correlation. To correct for this low correlation, the attribution ratios were transformed by taking the log base 10 for each subject (Cramer, 1998). The transformed attribution ratios correlated significantly with ADHD-IV: HV scores ($r = .457, p = .001$), thus meeting the second assumption. The final assumptions involve residuals of the regression analysis. Residual scores, or error scores, are the differences between subjects' observed scores on a variable and those predicted from the regression equations. Residuals should be independent, normally distributed, and linearly related to the correlating predictor. Analyses of the residuals suggest that these assumptions were met.

Results from the hierarchical multiple regression (see Table 4) indicated that although a linear relationship exists between PSI/SF scores and total scores on the ADHD-RS-IV: HV and ratios of stable attributions for undesirable child behavior, only total scores on the ADHD-RS-IV: HV can significantly predict PSI/SF scores ($R^2 = .313$;

$\Delta R^2 = .313$; $\beta = .552$; $F_{(1,66)} = 30.07$, $p < .001$). The addition of stable attribution ratios for undesirable child behavior did not account for any additional variance in total PSI/SF scores ($R^2 = .316$; $\Delta R^2 = .003$; $\beta = .053$; $F_{(2,65)} = .263$, $p = .610$).

Table 4

*Summary of Hierarchical Regression Analysis for Variables Predicting Parenting Stress (N = 69)**

Variable	B	SE B	β	R^2	ΔR^2
Step 1				.313**	
ADHD symptom severity	1.344	.253	.552**		
Step 2				.316	.003
Stable attributions	1.278	2.471	.053		

Note. Analysis for significance of combined prediction of Step 1 and Step 2 yielded $F_{(2,65)} = 16.907$, $p < .001$

* Using logarithmically transformed attribution ratios

** $p < .01$.

The hierarchical multiple regression was performed a second time using combined scores for stability of attributions for undesirable child behavior (see Table 5). Results indicated that the distributions of both the data and residuals fulfill the required assumptions. Results of the hierarchical multiple regression revealed that approximately 31% of the variability in total PSI/SF scores can be predicted by ADHD:HV-IV scores ($R^2 = .313$; $\Delta R^2 = .313$; $\beta = .559$; $F_{(1,66)} = 30.07$, $p < .001$). Logarithmically transformed

ratios of unstable attributions for undesirable behavior, however, did not account for any additional variance in total PSI/SF scores ($R^2 = .313$; $\Delta R^2 < .001$; $\beta = .015$; $F_{(1,66)} = .021$, $p = .885$).

Table 5

*Summary of Hierarchical Regression Analysis for Variables Predicting Parenting Stress (N = 69)**

Variable	B	SE B	β	R^2	ΔR^2
Step 1				.313**	
ADHD symptom severity	1.372	.259	.563**		
Step 2				.3136	.000
Stable attributions	.128	.015	.015		

Note. Analysis for significance of combined prediction of Step 1 and Step 2 yielded $F_{(2,65)} = 14.821$, $p < .001$

*Using combined attributions scores

** $p < .01$.

The third hypothesis asserted that parents of ADHD children would make significantly more unstable attributions about their children's prosocial behaviors than will the parents of non-ADHD children. The data for this analysis did not fulfill all of the assumptions required for independent-sample t test. Results of the Levene's test indicate that the two groups are homogeneous ($F = 2.091$, $p = .153$) and equal variance may be assumed. The assumption of normality was violated as reported earlier from

Kolmogorov-Smirnov results. The analysis continued, however, due to the robustness of the t test to this type of violation.

According to t test results, ADHD parents do not make significantly more unstable attributions about prosocial behavior than do non-ADHD parents ($t_{(67)} = .602, p = .549$). Power for this test was extremely poor (power = .091), producing only a 9.1% chance of finding a significant difference given that one exists.

The final hypothesis predicted that parental stress would uniquely contribute to the prediction of stable and uncontrollable attributions of undesirable child behavior, independent of parental symptoms of depression. With the removal of uncontrollable attributions as a variable, the hierarchical multiple regression included parent total scores on the BDI as the first predictor and total scores on the PSI/SF as the second predictor. The data for this analysis met the required assumptions. Total scores on the PSI/SF and BDI were found to correlate at $r^2 = .572$ ($p < .001$), fulfilling the assumption of multicollinearity. Analyses of the residuals indicate that the assumptions of normality and linearity, however, were violated.

Results from the hierarchical multiple regression indicated that a linear relationship does not exist between ratios of unstable attributions for undesirable child behavior and corresponding total PSI/SF scores and total BDI scores (see Table 6). Neither BDI scores ($R^2 = .012; \Delta R^2 = .012; \beta = -.047; F_{(1,66)} = .834, p = .364$), nor PSI/SF scores ($R^2 = .064; \Delta R^2 = .052; \beta = .277; F_{(1,65)} = 3.582, p = .063$) can predict the stable attributions for undesirable behavior at a better than chance level. However, these results should be interpreted with some caution due to the abnormality and nonlinearity of the residuals.

Table 6

*Summary of Hierarchical Regression Analysis for Variables Predicting Stable Attributions About Undesirable Child Behavior (N = 69)**

Variable	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.112	
Parent symptoms of depression	.010	.013	-.047		
Step 2				.064	.052
Parenting Stress	.010	.005	.277		

Note. Analysis for significance of combined prediction of Step 1 and Step 2 yielded $F_{(2,65)} = 3.582, p = .063$

*Using attribution ratios

A second hierarchical multiple regression was performed using with composite scores for stable attributions for undesirable child behavior as the dependent variable (see Table 7). This analysis yielded similar results to the previous regression. Results indicated that 4% of the variability in composite scores of unstable attributions is predictable from the variability in BDI scores ($R^2 = .040; \Delta R^2 = .040$), but not at a level significantly greater than chance ($F_{(1,66)} = 2.716, p = .104$). PSI/SF scores did not appear to contribute additionally to the prediction of composite scores of unstable attributions ($R^2 = .040; \Delta R^2 = .000$).

Table 7

*Summary of Hierarchical Regression Analysis for Variables Predicting Stable
Attributions About Undesirable Child Behavior (N = 69)**

Variable	<i>B</i>	<i>SE B</i>	β	R^2	ΔR^2
Step 1				.040	
Parent symptoms of depression	.006	.046	-.187		
Step 2				.040	.000
Parenting Stress	.003	.018	-.021		

Note. Analysis for significance of combined prediction of Step 1 and Step 2 yielded $F_{(2,65)} = .020, p = .887$

*Using combined attribution scores

Exploratory analyses were conducted to determine how parents making several stable attributions about undesirable child behavior might differ in terms of various aspects of parenting stress from those parents making few or no attributions. Frequencies of stable attributions (none, one to three, and four or more) served as independent variables (see Tables 8 and 9 for more details). A 3 x 5 analysis of variance (ANOVA) was completed using the subscales on the PSI/SF as dependent variables. The analysis indicated an interaction approaching significance for stable attributions and scores on the PSI/SF Difficult Child subscale ($F_{(2,66)} = 3.056, p = .054$). Post hoc testing revealed that parents who make four or more stable attributions about undesirable child behavior have

higher scores on the Difficult Child subscale than do parents who make no unstable attributions (Tukey *a*: HSD = 10.823, *p* = .044).

Table 8

Means and Standard Deviations for Three Frequencies of Stable Attributions on Parenting Stress and Symptoms of Depression (N = 69)*

Variable	No Attributions		One to Three Attributions		Four or More Attributions	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
PSI Scores						
Difficult Child	29.03	10.22	31.91	11.25	39.86	6.87
Parent-Child Dysfunctional Interaction	20.34	6.65	22.31	7.99	24.00	4.93
Defensive Responding	15.31	5.41	15.84	5.37	18.43	6.40
Parental Distress	25.31	8.15	25.34	7.82	28.71	7.87
Total Stress	74.89	22.10	79.56	23.79	92.57	15.60
BDI Total Score	9.52	10.15	8.75	7.62	10.14	9.11

*Stable attributions for undesirable child behaviors

Table 9

Analyses of Variance for Three Frequencies of Stable Attributions on Parenting Stress and Symptoms of Depression*

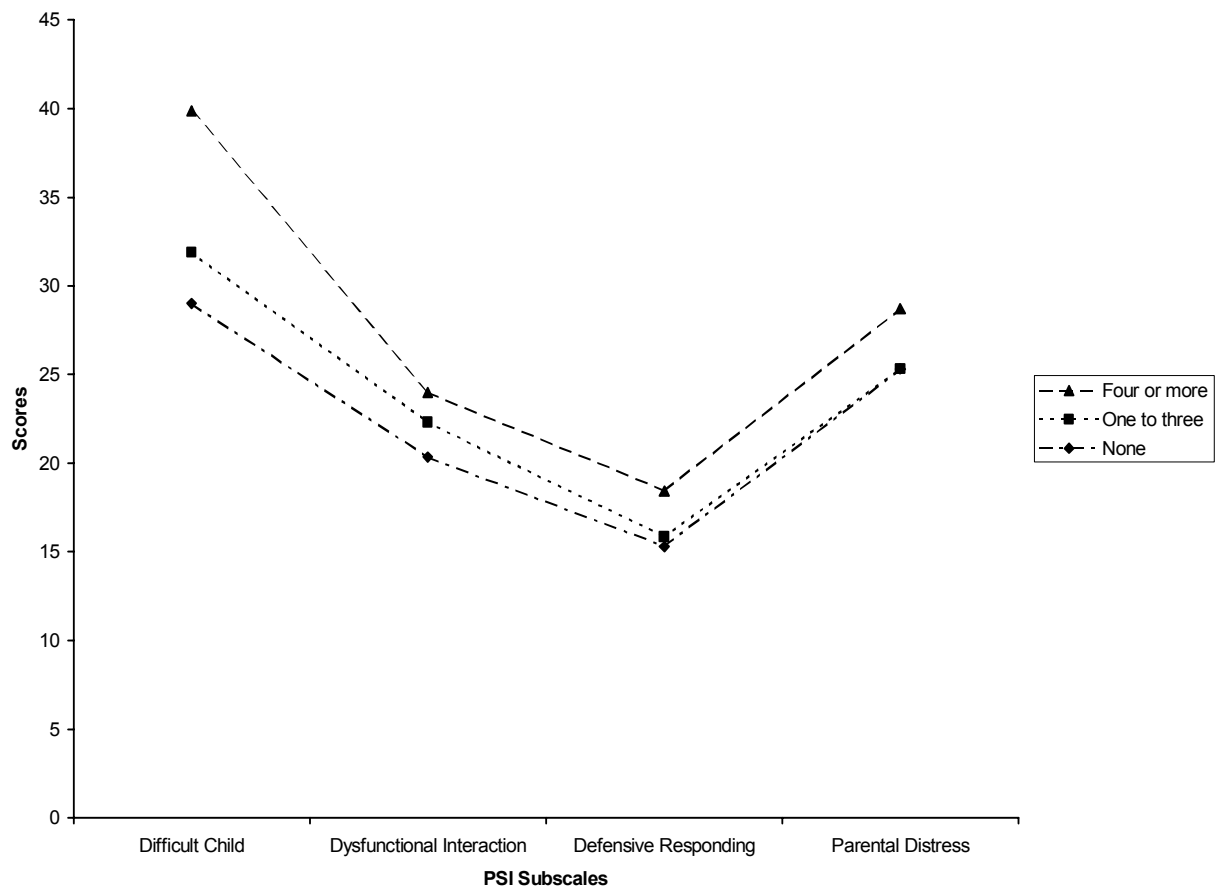
Variable and source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
PSI difficult child					
Between groups	2	670.459	335.229	3.056	.054
Within groups	66	7130.541	109.701		
PSI parent-child dysfunctional interaction					
Between groups	2	102.103	51.051	.988	3.78
Within groups	66	3359.427	51.683		
PSI defensive responding					
Between groups	2	54.919	27.459	.912	.407
Within groups	66	1958.140	30.125		
PSI parental distress					
Between groups	2	72.028	36.014	.567	.570
Within groups	66	4128.854	63.521		
PSI total stress					
Between groups	2	1836.086	918.043	1.826	.169
Within groups	66	32679.80	502.766		

*Stable attributions for undesirable child behaviors

Qualitative analyses suggested that parents who make more stable attributions for undesirable child behavior differ in their pattern of scoring on the PSI/SF from parents who make fewer or no stable attributions. Figure 1 illustrates that while parents grouped by frequencies of attributions produce similar patterns of scores on the PSI/SF subscales, they obtain scores at consistently different levels. For example, parents who made four or more stable attributions for undesirable child behavior scored higher on all subscales of the PSI/SF than those who made three or less.

Figure 1

Mean Scores on PSI/SF Subscales for Three Levels of Frequencies for Stable Attributions for Undesirable Child Behavior



CHAPTER THREE

DISCUSSION

A significant gap has developed in the literature between research highlighting the connections between parent attributions and behavior typical of children with Attention Deficit/Hyperactivity Disorder (ADHD; Baker, Heller, & Henker, 2000; Johnston, 1996; Mash & Johnston, 1990; Podolski & Nigg, 2001; Wells et al., 2000), and research focused on the relationships between raising children with ADHD and stress in parents (Gretarsson & Gelfand, 1988; Johnston & Freeman, 1997; Johnston & Patenaude, 1994; Sobol et al., 1989). A 1998 study by Bromley, examining control attributions and parental stress, is only available research which bridges this span. The current research was developed to further examine possible links between attributions made by parents of ADHD children about child behavior and perceived levels of parenting stress.

Current research supports the concept that certain types of attributions may influence individuals' experiences of stress (Amirkhan, 1998; Weiner, 1985). Based on this assumption, research conclusions regarding attributions made by parents of ADHD children (Johnston et al., 1998; Sobol et al, 1989), and evidence for high levels of stress in parents of ADHD children (Johnston, 1996), it stands to reason that a relationship is likely to exist between parents stress and attributions for child behavior in parents of ADHD children. Statistical results, however, indicated that ADHD status has no effect on

the frequency of stable attributions for undesirable child behavior, suggesting that ADHD parents and non-ADHD parents make similar ratios of spontaneous attributions for behaviors evaluated as undesirable. Despite lack of support for significant differences in ratios of stable attributions between the groups in terms of attribution ratios, parents of ADHD children did show a tendency to make stable attributions about the stability of undesirable child behavior more frequently than did non-ADHD parents. Approximately 20% of variability in the quantity of stable attributions a parent might generate for unwanted child behaviors may be accounted for by the ADHD status of the child. This effect may have some practical utility in real world application by accounting for such a portion of variability in attributions, especially considering how many other factors, such as parent self-esteem (Chandler & Lee, 1997), emotional state (Weiner, 1985) are likely to also influence a parent's attributions about child behavior. In addition, if this trend for parents of ADHD children to have a more pessimistic attributional pattern toward undesired child behavior is reflected in the population, it could have a negative impact on parents' abilities to cope with the behavior over time. For example, if parents of ADHD children were to follow the tendency toward making stable attribution for unwanted behavior, it may decrease the likelihood that those parents will persist in proactively dealing with a child's undesirable behavior long term (Weiner, 1985).

A trend toward viewing unwanted child behavior as being stable also appears to impact parents' perceptions of their children. Exploratory analyses revealed a significant relationship between higher frequencies of stable attributions for undesirable and parents' perceptions of the child's behavior as measured by the Parenting Stress Inventory/Short Form (PSI/SF; Abidin, 1990). In essence, parents who view their children as difficult

appear to also maintain a more negatively biased attributional style towards their children (Gretarsson & Gelfand, 1988). Given that some of the items of the PSI/SF Difficult Child subscales are designed to assess how consistent the parent views particular child behaviors, it is not surprising that the high scores on this scale would be associated with high frequencies of stable attributions. This suggests a possibility that high frequencies of stable attributions in parents for undesirable child behavior could be indicative of a more pervasive, negative perception of their children. Future research is required to establish such link.

The present study proposed, in the second hypothesis, that parents who make more stable attributions about undesirable behavior in their children would experience greater parenting stress. It was expected that these stable attributions would predict a significant amount of variability in perceived levels of parenting stress beyond that resulting from the severity of ADHD symptom severity in the child. This hypothesis was not supported by the results, and yet significant correlations were found between ADHD symptom severity and each component of parenting stress and stable attributions for undesirable behavior. These findings are consistent with current research (Johnston & Freeman, 1997; Mash & Johnston, 1990). A possible model for the interactions among child ADHD symptom severity, stable attributions, and parenting stress is one in which increases in parenting stress and stable attributions are independent results of ADHD severity that may covary in some parents but not others. One possible factor that might discriminate among these groups might be the duration of the parental stress. Research has demonstrated that although the experience of a negative event may itself produce short-term stress, long-term distress is likely to be the product of negative (stable)

attributions for a negative event (Vasquez, Jimenez, Saura, & Avia, 2001). An area for future research should focus on further characteristics that might differentiate ADHD parents who exhibit high stress and consistently stable attributions for undesired child behavior from those who only display one of these features.

A corollary to the proposed differences in stable attributions for undesirable child behavior was the prediction that parents of ADHD children would have a greater tendency to make unstable attributions when their children exhibit positive, or prosocial, behaviors. The analyses, however, did not support this proposition found in other research (Johnston & Freeman, 1997). It is possible that too few subjects provided spontaneous attributions about prosocial behavior to be able to draw any meaningful conclusion. Approximately 65% of the participants did not make any attributions for prosocial behavior, while only 20% made unstable attributions. Two separate factors may have influenced the low frequency of occurrence for this variable. First, research states that people tend to spend more time conversing about negative experiences than they do positive ones (Zautra & Reich, 1983). It is possible participants followed this trend by focusing more conversation time on negative interactions with their children than on the positive interactions. Second, parents of children with ADHD tend to be less attentive to prosocial child behaviors than to undesirable child behaviors (Cunningham & Barkley, 1979). It is possible that over half of the sample was too poorly attuned to child prosocial behavior to generate attributions. Future research might analyze the attentional differences in parents who make attributions about prosocial child behavior versus those who do not.

A final, exploratory hypothesis was included in this research to examine the influence of depression and stress in parents on parental attributions for undesired behavior in children. Previous research has indicated that depression and parenting stress are related (Naerde, Tambs, Mathiesen, Dalgard, & Samuelsen, 2000). An analysis was conducted to determine whether parenting stress and depression each have a unique influence on parent attributions. Neither parenting stress nor depression were able to predict significant variability in stable parent attributions for undesirable child behavior. This is contradictory to some of the available research that concludes that the more individuals are inclined toward a stable attributional style during negative events, the more depressed they are likely to be (Steinsmeier-Pelster, 1989). More recent research suggests that events must not only be attributed to stable factors to result in depressive symptoms, they must also be evaluated as personally important (Vasquez et al, 2001). How the assessed importance of child behavior mediates the interaction between parent attributions and perceived parenting stress should be included in future research.

Limitations

One of the greater limitations of this study is the reflection of one of its greater strengths. Previous research in this area has partially depended on directly questioning subjects about their attributions, using written scenarios as stimuli. This methodology has been criticized as producing less ecologically valid results. Although the use of spontaneous attributions embedded in the context of live parent-child interaction has added to the ecological validity of this research, it also may have created a low frequency of occurrence in the sample. For example, approximately 30% of parents made no spontaneous attributions, either stable or unstable, for undesirable behavior in their

children, and almost 65% of parents made none about their children's prosocial behavior. This low frequency of occurrence in the groups could have influenced the analysis in two ways: first, by creating positive skewness in the distributions and causing a violation of the assumptions of statistical analyses, and second, by significantly suppressing the variance of the two groups and the overall effect. In other words, the null results in this study may possibly be an artifact of the low frequency of occurrence of spontaneous attribution in both groups.

Another limitation of this study was that lack of information on attributions of controllability of child behavior. One of the goals of this study was to address the criticism that earlier research has not sufficiently examined the variety attributional dimensions (Amirkhan, 1998). The extremely low occurrence of control attributions prohibited analysis of this dimension. No information is available in the literature to explain why control attributions might not be generated spontaneously as often as other dimensions. Future research on parental attributions would benefit from the inclusion of multiple means of attribution measurement, such as combining observed analogue methods with written analogue. This potentially could compensate for low frequencies of occurrence while maintaining sufficient ecological validity.

This study examined the interactions among parenting ADHD children, stability of attributions for child behavior, and perceived levels of parenting stress. Although statistical significance was not achieved on some analyses, qualitative differences appear to exist in the stress associated with raising children with ADHD. Those qualitative differences suggest that actual differences may exist in the population between ADHD and non-ADHD parents in how consistent they view child behaviors and their perceptions

of stress from parenting. In future research, more careful attention must be given to methods of gathering data to include both spontaneous and elicited attributions, as well as to adequately examining a multiple attributional dimensions.

APPENDIX A
PARENTAL ATTRIBUTION CODE

PARENTAL ATTRIBUTION CODING SCALE

General Instructions

1. Reread the descriptions of codes given below.
2. Follow the instructions given in the *Observational Coding System for Parent-Child Interactions* under “General Instructions” for watching the scenarios during the first time through.
3. Watch the scenario a second time, listening carefully for the first parent attribution. When you hear it:
 - a. Pause the tape and transcribe the parent’s exact verbalization in the **lower half** of the block labeled, “Child Behavior and Parent Attribution” on the coding sheet.
 - b. Rewind the tape to double-check the accuracy of your transcription.
 - i. If the attribution takes place during a PCIA scenario:
 1. Rewind the tape again, going back 15 second from when the parent begins to make the attributional statement, looking for the behavior to which the parent was referring
 2. Write a description of the child’s behavior in the **upper half** of the block labeled, “Child Behavior and Parent Attribution” on the coding sheet.
 3. Rate the child’s behavior during that 15 second interval according to the codes below.
 4. Code the parent’s attribution as it applies to the described child behavior.
 - ii. If the attribution occurs during the parent inquiry:
 1. Rewind the tape to listen to the recorded portion of the PCIA scenario which was played on video for the parent.
 2. If possible, write a description of the child’s behavior in the **upper half** of the block labeled, “Child Behavior and Parent Attribution” on the coding sheet. Be sure to note on the code sheet if it is not apparent to what child behavior the parent is referring.
 3. Rate the child’s behavior to which the parent is referring.
 4. Code the parent’s attribution as it applies to the described child behavior.
 - c. Continue watching and rewinding the tape through the rest of the scenarios and parent inquiry, being sure to code the **child’s behavior before coding the parent’s attribution.**

Codes for child behavior (including verbalizations) preceding attribution

1. Undesirable Behavior
2. Prosocial Behavior
3. Not Codeable

Undesirable Behavior: This code includes a range of behavior from obvious oppositional child behavior to subtler noncompliance. This code also includes a range of behaviors commonly observed in children with ADHD. This code should be applied to all of the following behaviors:

1. Physical aggression against self or others
 - a. Others may include parent, examiner, toy people, imaginary people, animals, inanimate toys, equipment, and furniture.
 - b. Count any action by the child that is destructive or hurtful OR would be perceived as destructive or hurtful if the child's play were real.
 - c. See AGG code for more details.
2. Verbal aggression
 - a. Toy figures used verbally aggress against other figures.
Example: Child uses toy child figure to tell parent figure, "I'm going to hit you."
 - b. Child engages in acts of verbal aggression toward parent, toys, or experimenter.
Example: Child says to parent, "Shut up!"
 - c. May include threats, name-calling, or some sound effects, like growling.
3. Child non-compliance
 - a. This form of inappropriate behavior may require the coder to rewind the tape further than the typical 15 seconds to verify that a request has been made of the child.
 - b. Direct refusal to behaviorally or verbally comply with requests
 - c. Ignoring of parental request
 - i. Child ignores the parent either by not responding to parental request at all or by not responding within 5 seconds of parental request.
 - d. Avoidance of parental request
 - i. Child does not verbally respond with a clear yes or no, or says, "I don't know".
 - ii. Child changes the subject.
 - e. See NO, AVD, INC, and IGN codes under Compliance for more details.
4. Inattention
 - a. Failure to sustain attention to the PCIA activities.
 - i. Child is distracted by stimuli outside the PCIA activity such as noises outside, objects in the room other than the PCIA toys, or the experimenter outside of instructions.
 - ii. Child gets lost in daydreams or appears to "fade out."
 - b. Failure to attend to verbal instructions from parent (or parent figure) or examiner
 - c. Distraction by stimuli outside the PCIA activities.
5. Hyperactivity
 - a. Physical restlessness, like fidgeting or squirming in chair

Example: Child plays with microphone and detaches it from his/her shirt repeatedly.

- b. Excessive motor activity, like getting up and down from chair
Example: Child crawls under table, cannot remain seated, jumps up and down while seated in chair
- c. May also include other forms of excessive physical activity or excessive talking

6. Impulsivity

- a. Interrupting others
- b. Inability to delay gratification
 - i. Child cannot wait for his/her turn.
 - ii. Child has temper tantrum when denied something he/she wants.

The Inappropriate Behavior code is only assigned to child behavior that directly precedes a parental attribution. A demonstration of child misbehavior that is not followed by a parental attribution is not coded. Put Y in the column labeled “UND” if the child’s behavior, including verbalizations, is Undesireable.

Prosocial Behavior: This code includes behaviors and verbalizations commonly deemed as helpful and considerate by society. These behaviors will include:

1. Cooperation with others
2. Sharing
3. Compliance to authority figures and rules
4. Positive response to the needs of others, such as helping
5. Kindness to others

Put Y in the column labeled “PRO” if the child’s behavior is Prosocial.

Not Codeable: This code, labeled NC on the Parental Attribution Code sheet, is given when: 1) the child behavior to which the parent is referring cannot be determined, or 2) the behavior preceding the parental attribution cannot be coded as Undesirable or Prosocial Behavior (e.g., if the behavior is neutral or otherwise not codeable as UND or PRO). The reasoning for assigning the NC code must be recorded on the code sheet. Put a Y in the column labeled “NC” if the code given is Not Codeable.

Examples of NC codes are include, but are not limited to:

1. Parent Attribution: “He is like this all the time.” Code=NC
Parent makes this statement during inquiry, but does not refer to any particular behavior.
2. Parent Attribution: “He is like this all the time.” Code=UND/PCIA/STABLE
Parent makes this statement while the videotaped scenario is being played back to her, right after the child runs away from the parent in the scenario.

3. Parent Attribution: “This is really typical of our behavior.”
Parent makes this statement during inquiry, in response to the question, “What is happening during this one?” The parent does not appear to be referring to any particular child behavior.

Codes for Location of Child Behavior

1. PCIA vs. Historical

PCIA or Historical: Most of the time, the parent will be referring to child behavior that occurs during the PCIA activity when making attributional statements. The parent may occasionally, however, refer to child behavior that has occurred sometime outside of the PCIA setting.

PCIA: The PCIA code is assigned to any child behaviors which have occurred during the PCIA activity. This means that the child behavior to which the parent is referring has to have been caught on tape. Parents may make attributions about these child behaviors either as they occur or during the Parent Inquiry while the parent is reviewing the taped interaction. If the child behavior occurs during the PCIA activity, put a “Y” for “Yes” in the column marked “PCIA?” on the coding sheet.

Examples of the PCIA code include, but are not limited to:

1. Behavior: Child refuses to leave the zoo at the parent’s request.
Parent Attribution: “Why don’t you ever cooperate?.” Code= PCIA
2. Behavior: Child cleans up the lunch trash and throws it away without being asked to do it.
Parent Attribution: “You are always so good about cleaning up after yourself.”
Code=PCIA
3. Behavior: Child throws the seesaw pieces on the ground when parent will not play on it.
Parent Attribution: “Man, I wish I knew what to do with you.” Code=PCIA

Historical: The historical code is assigned to any child behaviors which have occurred outside the PCIA activity. This means that the child behavior to which the parent is referring has not been caught on tape. The child behavior can include specific

descriptions of single incidents or general statements about on-going child behavior. If the child behavior occurs outside the PCIA activity, put a “N” for “No” in the column marked “PCIA?” on the coding sheet.

Examples of the Historical code include, but are not limited to:

1. Behavior: Parent describes to the student researcher during inquiry the child’s usual pattern of behavior around bedtime.
Parent Attribution: “She never goes to bed the first time you ask her. She is always up and down, and up and down. Code= HISTORICAL
*Note: The above statement actually represents two separate, stable attributions about the same undesirable child behavior. The two statements would be recorded separately on the coding sheet.
2. Behavior: Parent recalls an undesirable interaction between the parent and child from a week ago. The parent states that the child hit the parent during a disagreement.
Parent Attribution: “You always get so violent when we disagree.”
Code=HISTORICAL
3. Behavior: Parent describes in inquiry the tendency for the child to have problems with others in interactions.
Parent Attribution: “He’s always grabbing someone or hitting them.” Code= HISTORICAL

Codes for Parent Attributional Statements

1. Stable vs. Unstable
2. Controllable vs. Uncontrollable

Stable or Unstable: When coding for stability or instability, listen for words like “always”, “never”, “usually”, and “rarely.” They often indicate the how chronic or temporary the particular behavior is for the child.

Stable: Stable attributions are statements about child behavior that indicates a degree of consistency or permanence of that particular behavior. This code is assigned when the parent is commenting that the behavior is common to the child. If the parent attribution is Stable, put a “Y” for “Yes” in the column marked “Stable?” on the coding sheet.

Examples of Stable attributions include, but are not limited to:

1. Behavior: Child figure runs away from parent figure and hides behind a tree.
Parent Attribution: “He is like this all the time.” Code=PRO/PCIA/STABLE

2. Behavior: Child ignores parents questions about what to have for lunch.
Parent Attribution: "She never pays attention to what I am saying."
Code=UND/PCIA/STABLE

3. Behavior: Child figure interrupts parent figure who is talking with friend figure.
Parent Attribution: "Boy, is this art imitating life." Code=UND/PCIA/STABLE

4. Behavior: Child says "Please" and "Thank you" when parent pretends to serve lunch.
Parent Attribution: "You are never rude, are you?" Code=PRO/PCIA/STABLE
*Note that even though the parent statement may appear to refer to the how rarely, or unstably, the child displays undesirable behavior (rudeness), when applied to the actual child behavior, the parent is indicating that politeness is the normal behavior for this child. Thus it is a stable attribution.

5. Behavior: Parent recalls an instance in which the child hid his sister's toy from her.
Parent Attribution: "This makes me think of that time you hid your sister's Etch-a-Sketch from her and wouldn't give it back. You do stuff like that all the time, huh?" Code=UND/HIST/STABLE

Unstable: Unstable attributions are statements about child behavior that indicates a degree of inconsistency or impermanence of that particular behavior. This code is assigned when the parent is commenting that the behavior is not common to the child. If the parent attribution is Unstable, put a "N" for "No" the column marked "Stable?" on the coding sheet.

Examples of unstable attributions include, but are not limited to:

1. Behavior: Child has a temper tantrum when parent says that she cannot play on the seesaw.
Parent Attribution: "She's not usually like this."
Code=UND/PCIA/UNSTABLE

2. Behavior: Child has quickly complied with parent's request to leave the zoo.
Parent Attribution: "Boy, I wish it were this easy at home"
Code=PRO/PCIA/UNSTABLE

3. Behavior: Child figure interrupts parent figure who is talking with friend figure.
Parent Attribution: "This does not happen at home." UND/PCIA/UNSTABLE

Not Applicable: In some circumstances, a code for stability or instability may not be appropriate for a parent attribution. This most often occurs when a parent is making

an attribution about how controllable a child's behavior is. If the parent attribution makes no reference to how stable or unstable a child's behavior is, code it as Not Applicable. Put a "NA" for "Not Applicable" the column marked "Stable?" on the coding sheet if the quality of the attribution is not apparent.

Controllable vs. Uncontrollable: This code is given to parent attribution about the **parent's ability** to control the child's behavior. Comments about the child's ability to control his/her own behavior will not be coded.

Controllable: Controllable attributions are statements about the parent's perceived level of control over the child's behavior. Whether or not the parent appears to the rater as able to control the child's behavior does not influence this code. **Only the parent's perception of how much control he/she has over the child's behavior is important.** This code is assigned to parent's statements describing the parent's behavior as changing or having influence on the child's behavior.

Examples: "She is only acting up because I did not tell her to behave."

"If I can make him understand me, then he will act better."

"She shares well with others because I really emphasize that at home."

Uncontrollable: Uncontrollable attributions are also statements about the parents perceived level of control over the child's behavior. In this case, the code is assigned to parent statements describing the parent's behavior as having no or little influence over the child's behavior.

Examples: "I have tried everything, and nothing seems to change her."

"I do not know what to do with him anymore."

"When he gets like this, there is nothing I can do about it."

If the parent attribution is Controllable, put a "Y" for "Yes" the column labeled "Control?" on the Coding sheet. Mark "N" for "No" if the parent attribution is Uncontrollable. Put a "N/A" if the quality of the attribution is not apparent.

APPENDIX B
INFORMED CONSENT

**UNIVERSITY OF NORTH TEXAS
COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS
RESEARCH CONSENT FORM**

Page 1 of 5

Subject Name: _____ Date: _____

Title of Study: Parent-Child Relationships and Social Functioning in Children with and without Attention-Deficit/Hyperactivity Disorder (ADHD)

Principal Investigator: Patricia Kaminski, Ph.D.

Co-Investigators: Sarah L. Durrant, M.S., Shelly Warren, M.S., & Corinne Smith, M.S.

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the proposed procedures. It describes the procedures, benefits, risks, and discomforts of the study. It also describes the alternative treatments that are available to you and your right to withdraw from the study at any time. It is important for you to understand that no guarantees or assurances can be made as to the results of the study.

PURPOSE OF THE STUDY AND HOW LONG IT WILL LAST:

The purpose of this study is to observe parent-child interactions and how children function socially. Each parent's involvement will consist of 3 hours. Each child's involvement will be about 2 hours

DESCRIPTION OF THE STUDY INCLUDING THE PROCEDURES TO BE USED:

Parents and children will come to the UNT campus for the study. Each parent-child pair will be videotaped while they play together with a specific set of toys. A research assistant will interrupt the play frequently and suggest a new storyline. After 30 minutes of play, each person will watch a few minutes of the videotape and be asked some questions about it. Then, each parent will answer a set of written questionnaires related to parenting behaviors, attitudes, stressors, parent's and child's psychological symptoms (for example: worrying, hyperactivity, depression, etc.), and the demographics and brief medical history of their family [for example, level of education, marital status, number of children, and current medications (child only)]. While the parent is completing the questionnaires, the child will go to a separate room with a graduate student to complete 3 questionnaires that ask about parent behaviors (for example: "[My mother] tries to help me when I am scared or upset."), and how they feel about themselves in relation to their physical, academic, and social functioning (for example: "Do you have lots of friends at school?"). The graduate student will read each question to the child, and the child will mark his/her responses on the questionnaires. The child will be given play and snack breaks as needed. If the child finishes his/her questionnaires before their parent is done, a research assistant will be available to supervise (and play with) the child. In addition, each parent may choose to complete a letter addressed to the child's teacher asking their help in completing two measures regarding the child's social behavior at school (we will have the 2 surveys available for the parent to review before deciding whether or not to have the child's teacher involved).

Because a primary purpose of this study is the comparison of children with and without attention deficits, children who have ADHD cannot be on their stimulant medication during the

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Subject Name: _____ Date: _____

Title of Study: Parent-Child Relationships and Social Functioning in Children with and without Attention-Deficit/Hyperactivity Disorder (ADHD)

Principal Investigator: Patricia Kaminski, Ph.D.

Co-Investigators: Sarah L. Durrant, M.S., Shelly Warren, M.S., & Corinne Smith, M.S.

videotaped play. During the phone contact that set up the appointment, parents were asked to make sure that their child has not taken their latest dose of stimulant medication (e.g., Ritalin, Adderall). Furthermore, parents were asked to bring their child's stimulant medication with them so that the child can take the medication immediately before the videotaped play. Since the medication is not effective for about 30 minutes, we can get the data we need and minimize the time the child needs to be off his/her medication.

Researchers will study the videotapes of over 100 different parent-child pairs. The long-term goal is to better understand the relationship between parents and children and how it relates to children's functioning in school, family, and peer relationships.

DESCRIPTION OF PROCEDURES/ELEMENTS THAT MAY RESULT IN DISCOMFORT OR INCONVENIENCE:

There is a chance that some parent-child pairs will feel uncomfortable during the play exercise when the research assistant suggests a storyline that presents a problem that needs to be solved. An example of this would be: "{Child's Name} wants to look at the tigers and {Mom} wants to look at the hippos. Play out what happens together." Although certain tasks may suggest a disagreement, a researcher will be present at all times to minimize any discomfort that arises. Additionally, at the end of the play exercise, you and your child will have time to talk about your experiences. Any questions that might arise during the play exercise or questionnaire section of the study will be answered by the researcher.

DESCRIPTION OF THE PROCEDURES/ELEMENTS THAT ARE ASSOCIATED WITH FORESEEABLE RISKS:

Only minimal risk of psychological discomfort is associated with participation in this study.

BENEFITS TO THE SUBJECTS OR OTHERS:

By participating in this study, you and your child can benefit by learning more about one another. Also, you will be indirectly benefiting other parents and children because the information gathered by the researchers will help us learn about what makes parents and children get along the best or what can lead to difficulties in the relationship. Further, the results of this study will contribute to the understanding of how parent-child relationships are related to children's functioning at home and school, especially for children with attention deficits. Once we understand these issues, professionals can provide more appropriate services to children with ADHD and those experiencing relationship problems with their parents and their friends. In

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RESEARCH CONSENT FORM**

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Subject Name: _____ Date: _____

Title of Study: Parent-Child Relationships and Social Functioning in Children with and without
Attention-Deficit/Hyperactivity Disorder (ADHD)

Principal Investigator: Patricia Kaminski, Ph.D.

Co-Investigators: Sarah L. Durrant, M.S., Shelly Warren, M.S., & Corinne Smith, M.S.

In addition, we will pay you a small amount as a way of thanking you for your time. That amount is \$10 per hour (approximately \$30 total). Finally, we also offer referral information to you when you complete the study in case you or your child would like to speak to a mental health professional about your relationship (or other matters).

CONFIDENTIALITY OF RESEARCH RECORDS:

Your identity and all of your information will be kept private (confidential). Researchers will not mention your last name while the videocamera is recording. All records (questionnaires, videotapes, and our copy of this form) will be kept in a securely locked file cabinet in a locked room in Terrill Hall at UNT. Once all of the measures are completed, your name will not be associated with the videotape or any information you provide. We will assign a random number to all of your records, and that number will be the only identifier. There will only be one list that matches the name and number, and only the primary researchers will have access to that confidential list, which will be kept in a locked file cabinet in a locked room.

REVIEW FOR PROTECTION OF PARTICIPANTS:

This research study has been reviewed and approved by the UNT Committee for the Protection of Human Subjects (940) 565-3940.

RESEARCH SUBJECTS' RIGHTS:

I have read or have had read to me all of the above.

This study has been explained to me via this form and/or via other communication with the investigators. I have been told the risks or discomforts and possible benefits of the study. I have been told of other choices of treatment available to me.

I understand that I do not have to take part in this study, and my refusal to participate will involve no penalty or loss of rights to which I am entitled. I may withdraw at any time without penalty or loss of benefits to which I am entitled. The study personnel can stop my participation at any time if it appears to be harmful to me, if I fail to follow directions for participation in the study, if it is discovered that I do not meet the study requirements, or if the study is canceled.

In case there are problems or questions, I have been told I can call Patricia Kaminski, Ph.D., Sarah L. Durrant, M.S., Shelly Warren, M.S., or Corinne Smith, M.S. at telephone number (940) 565-2671.

**UNIVERSITY OF NORTH TEXAS
COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS
RESEARCH CONSENT FORM**

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Subject Name: _____ Date: _____

Title of Study: Parent-Child Relationships and Social Functioning in Children with and without Attention-Deficit/Hyperactivity Disorder (ADHD)

Principal Investigator: Patricia Kaminski, Ph.D.

Co-Investigators: Sarah L. Durrant, M.S., Shelly Warren, M.S., & Corinne Smith, M.S.

I understand my rights as a research subject, and I voluntarily consent to participate in this study. I understand what the study is about and how and why it is being done. I will receive a signed copy of this consent form.

.....
Subject's Signature Date

.....
Signature of Witness Date

Informed Consent for Videotaping (Choose & initial one statement below):

.....
I give my permission for my child and I to be videotaped and for that videotape to be shown in professional settings.

.....
I give my permission for my child and I to be videotaped, but I do not agree to have that videotape shown to anyone who is not directly involved with Dr. Kaminski's research.

For the Investigator or Designee:

I certify that I have reviewed the contents of this form with the person signing above, who, in my opinion, understood the explanation. I have explained the known benefits and risks of the research.

Principal Investigator's or Designee's Signature

Date

**UNIVERSITY OF NORTH TEXAS
COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS
RESEARCH CONSENT FORM**

Page 5 of 5

Subject Name: _____ Date: _____

Title of Study: Parent-Child Relationships and Social Functioning in Children with and without
.....
..... Attention-Deficit/Hyperactivity Disorder (ADHD)
Principal Investigator: Patricia Kaminski, Ph.D.
Co-Investigators: Sarah L. Durrant, M.S., Shelly Warren, M.S., & Corinne Smith, M.S.

CHILD ASSENT:

If the parent chooses to sign the Informed Consent, they may read the following to their child or have the researcher do so, “[I/Your Mom/Dad] [have/has] just agreed to help today, but [they/we] need your help, too. You can decide whether or not you want to help. What [they/we] need you to do is play with certain toys with [me/your mom/dad] while [they/we] make a movie of [us/you]. [Researcher’s name/I] will play with [us/you and your Mom/Dad] and give ideas about what is happening. When we’re done making the movie [Researcher’s Name/I] will show you some of it and ask you some questions about it. [Researcher’s name/I] will help you answer some questions on paper. Would you like to do that?”

Wait for the child response.

If the child verbalizes assent or signals assent by nodding their head, point to the appropriate spot below and say, “**OK, thank you. To show that you said ‘yes’ I need you to write your first name or put an ‘X’ in this space here.**”

YES _____

If the child does not verbalize or signal assent or communicates dissent, point to the appropriate spot on below and say, “**OK, thank you. To show that you said ‘no’ I need you to write your first name or put an ‘X’ here.**”

NO _____

For the Investigator or Designee:

I have read or observed the reading of the appropriate passages above to the child participant and interpreted his/her wishes to the best of my ability.

Investigator’s or Designee’s Signature

Date.

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