

## Abstract

HART, KENDREA C. Social Information Processing as a Mediator of the Relation between Harsh Parenting and Childhood Aggression. (Under the direction of Mary Haskett, PhD.)

The purpose of this study was to examine the hypothesized mediating role of social information processing on the relation between harsh parenting and childhood aggression. Specifically, this study sought to gain a better understanding of the association between parenting and children's interpretations and mental representation of cues (intent attribution), their ability to generate solutions (response generation), and their solution selection process (response decision) and how these processes, in turn, relate to children's propensity to behave aggressively. The sample consisted of 166 children and their parents.

Approximately half of the children had a substantiated history of physical abuse. It was hypothesized that (a) higher levels of parental harshness would predict higher levels of aggression in children, (b) hostile intent attributions, fewer types of solutions generated, and a higher number of aggressive decisions would predict higher levels of child aggression, and (c) the relationship between parental harshness and aggressive behavior would be mediated by intent attributions, response generation, and response decision. Mediation was assessed using a series of regression analyses. Results revealed that harsh parenting did not significantly predict child aggression, response generation or response decision. Harsh parenting, did however, predict children's intent attributions. Harsh parenting also predicted response decision when recoded as a dichotomous variable in a post-hoc analysis. Results further revealed that none of the social information processing operations investigated (intent attributions, response generation, and response decision) significantly predicted child

aggression. Due to the lack of prediction among variables, mediation could not be assessed. Considerations for interpreting results, as well as directions for future research are discussed.

Social Information Processing as a Mediator of the  
Relation between Harsh Parenting and Childhood Aggression

By

Kendrea C. Hart

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Chair of Advisory Committee

## Biography

Kendrea Childers Hart was born on September 22, 1979. She is the daughter of Edward B. Hart and Bettieanne C. Hart, and has one sister, Mikkal Hart. She graduate from Burke County High School of Waynesboro, Georgia in 1997 and later graduated Magna Cum Laude from Spelman College with a Bachelor of Arts degree in Psychology and departmental honors in 2001. She enrolled in the School Psychology doctoral program at North Carolina State University in the fall of 2001. She will graduate with a Master of Science degree in May 2006 and continue in pursuit of a doctoral degree in School Psychology at North Carolina State University.

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## Introduction

Childhood aggression is a serious concern that has become the focus of a substantial amount of research that suggests a link between aggression in childhood and later life difficulties (Brook, Whiteman, Flinch, & Cohen, 1998; Kokko & Pulkkinen, 2000; Parker & Asher, 1987; Pettit, 2000). Characteristics associated with aggression are important because they can be predictive of other existing problems as well as serious future adjustment difficulties including school failure, substance abuse, and psychological problems (Crick & Ladd, 1993; Parker & Asher, 1987). It is important for researchers, caregivers, and various professionals who work with children to understand the risks related to problems with aggression in children, as well as the differing life trajectories that can be associated with childhood aggression.

Risk factors associated with childhood aggression are often detected early in the child's development. Research has revealed that early detection and intervention for these children is more effective than later treatment (Hill, Coie, Lochman, & Greenberg, 2004; Lochman, Coie, Underwood, & Terry, 1993). In order to develop effective interventions, it is important to understand the factors that impact aggressive behaviors. Past research demonstrates that parenting behavior shows a strong relation to children's propensity for aggression (Milner, 2003; Stormshak, Bierman, McMahon, Lengua, & The Conduct Problems Prevention Group, 2000). Children who display aggressive behavior may have experienced more exposure to aggressive models, more reinforcement for aggressive behaviors, and more hostile interpersonal learning experiences than those who show appropriate levels of social adjustment (Lahey, Loeber, Quay, Frick et al., 1992).

Social learning theories predict that parenting practices act to model, suggest, and selectively reinforce child social behavior, thereby indirectly influencing peer relations (Bandura, 1977). Furthermore, high levels of coercive and punitive discipline, including frequent reprimands, threats, and hostile punishment appear to promote child aggression (Chang, Schwartz, Dodge, & McBride-Chang, 2003; Stormshak et al., 2000; Weiss, Dodge, Bates & Pettit, 1992).

Current researchers have attempted to identify the processes by which parenting practices impact children. It has been proposed that parenting impacts children's aggression both directly and indirectly, through influencing children's social cognitions, such as social information processing. Indeed, parent-child interactions appear to influence children's social problem solving abilities by teaching children conflict resolution strategies and how to interact with others (Pettit, Harrist, Bates, & Dodge, 1991; Weiss et al., 1992).

It has been postulated that social cognitions are the mechanisms leading to behaviors that have a significant impact on social adjustment (Crick & Dodge, 1994; Dodge, 1980; Dodge, Pettit, McClaskey & Brown, 1986). The social information processing model identifies cognitive processes involved in an individual's response to a specific social situation. It includes processes such as how a person perceives social cues (encoding), makes attributions and inferences about those cues (intent attributions), generates possible solutions (response generation), and makes behavioral decisions about how to respond (response decision) (Crick & Dodge, 1994). Each phase of social information processing has been shown to predict children's levels of aggression. For instance, studies have shown that children with hostile attributions toward peers and limited problem solving capabilities tend

to be more aggressive (Dodge et al., 1986; Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002).

In sum, previous studies have provided evidence that childhood aggression appears to be related to numerous adjustment problems and later life difficulties. Studies have also demonstrated a relation between harsh parenting and aggression and social information processing operations and aggression. The current study sought to advance the knowledge in understanding these relations in children by investigating three operations in the social information processing model (i.e., intent attributions, response generation, and response decision) as possible mediators of the relation between harsh parenting and childhood aggression. Maltreated children and their parents were included in the sample in order to capture the extremes in the range of parenting behaviors. Parenting practices, however, were investigated on a continuum as opposed to dichotomizing parents into maltreating and nonmaltreating groups. Research relevant to this study and the rationale for design and procedures in this study are discussed in detail in following chapters.

## Literature Review

### *Negative Outcomes for Aggressive Children*

Childhood aggression is associated with several negative outcomes throughout adolescence and into adulthood. Researchers have found that children who display aggressive behavior, especially at early ages, are at risk for negative peer relations, negative school experiences, substance abuse, and adolescent delinquency (Brook, Whiteman, Flinch, & Cohen, 1998; Kokko & Pulkkinen, 2000; Parker & Asher, 1987; Pettit, 2000). A child who demonstrates aggressive behavior is more likely to be rejected by peers, which research has demonstrated can lead to inexperience in prosocial skills and risk for deviant peer

affiliations (Dodge, Lansford, Burks, Bates, Pettit et al., 2003; Khatri, Kupersmidt, & Patterson, 2000). Some of these issues, such as negative peer experiences, exacerbate one another and set into motion a chain of events that may lead to maladjustment as adults. Parker and Asher (1987) evaluated three indexes of problematic peer relationships, including low peer acceptance, aggressiveness, and shyness/withdrawal as predictors of three later outcomes. Outcomes were dropping out of school, criminality, and psychopathology. Parker and Asher reviewed several articles investigating these issues using various methodologies, such as peer report, teacher report, follow-back longitudinal designs, and follow-up longitudinal designs. They found that 26 of the 31 studies that attempted to predict later juvenile and adult crime supported aggression as a predictor. Additionally, the tendency for offenders to show a history of aggressiveness seemed fairly robust, since findings were consistent across studies that differed substantially in sample types, operationalizations of offense, and in how carefully the investigators controlled for confounding variables. Aggression also appeared to be a predictor of school dropout in many of the studies reviewed. Youth who dropped out of school consistently had higher teacher and peer ratings for aggression than those who did not. The authors also found that 4 out of 11 studies that attempted to predict adult psychopathology found support for aggression as a predictor.

Kupersmidt and Coie (1990) conducted an empirical study to investigate the hypothesis that pre-adolescents who were rejected by their peers or who were aggressive toward their peers were at heightened risk for subsequent problems of adjustment. Data were collected as a part of a longitudinal project in which 112 fifth grade students were followed for seven consecutive years. The students' levels of aggression were assessed during their fifth grade year using a peer-assessment questionnaire. Results indicated that aggression was

a significant predictor of police or court contact, school suspension, and school dropout. Aggression was also correlated with grade retention and truancy. Furthermore, when aggression and peer rejection were compared to one another as predictors of adolescent problems, aggression proved to be a stronger predictor than peer rejection.

In a more recent empirical study, Khatri, Kupersmidt, and Patterson (2000) investigated the outcomes for children exhibiting peer-related aggression and sought to evaluate whether aggression added to the prediction of maladjustment over and above prior emotional difficulties. The study involved 471 fourth, fifth, and sixth graders in a two-year longitudinal study. Levels of aggression were determined through peer nomination and self-report. As predicted, peer aggression in the first year was related to subsequent externalizing problems in the second year, including aggression and delinquency.

Childhood aggression also has been found to have adverse outcomes into adulthood in areas such as substance abuse and unemployment. Kokko and Pulkkinen (2000) conducted a longitudinal study in Finland, which began in 1968 and traced students from 8 to 36 years of age. The investigators were interested in determining whether childhood aggression began a cycle of maladaptation that resulted in an unstable work life. The study involved 311 participants after attrition, with a relatively even distribution of women and men. Results indicated that aggression in childhood was related to long-term unemployment in adulthood. In addition to long-term unemployment, aggression at age 8 was related to school maladjustment, problem drinking, and lack of occupational alternatives.

Not all children who display aggressive behaviors continue to have behavior problems as adolescents or become maladjusted adults. Loeber and Hay (1997) discussed several developmental sequences and pathways that could aid in the prediction of whether or

not children who displayed aggressive behavior would have difficulties as adolescents and adults, with age of onset being one of the key predictors. Based on a review of previous studies, they suggested that the age of onset of aggression was sequentially earlier for each level of severity of aggression. The authors found that most persistently aggressive children displayed overt aggression at an earlier stage rather than at a later stage, and most who engaged in violence displayed aggressive behaviors at an earlier stage. For the children who continued to display aggressive behavior as adolescents, Loeber and Hay proposed a developmental pathway in which individuals progressed through an orderly sequence of aggressive behavior, where the severity of aggression increased with time.

In sum, research has demonstrated that childhood aggression is associated with risks for a number of adverse outcomes in adolescence and adulthood, including adolescent delinquency, substance abuse, school dropout, psychopathology, unemployment, and criminal behavior (Brook, Whiteman, Flinch, & Cohen, 1998; Kokko & Pulkkinen, 2000; Parker & Asher, 1987; Pettit, 2000). Many of these outcomes can exacerbate one another and result in more adverse effects. Therefore, it is important to investigate variables that are associated with child aggression and that place children at risk for child aggression. The purpose of the current study was to investigate the relationships among harsh parenting and social cognitive functions and childhood aggression, which could aid in the future development of successful strategies for helping children who are at risk for aggression.

### *Harsh Parenting as a Predictor of Child Aggression*

For many years, researchers have been interested in the relationship between parenting behavior and children's socioemotional adjustment. Many theories have postulated possible mechanisms by which parenting can affect children's adjustment and behavior.

Regardless of the mechanisms suggested, most theories reflect the notion that some parenting behaviors are associated with more positive outcomes during childhood, adolescence, and into adulthood. Conversely, some parenting behaviors appear to predict negative outcomes such as child aggression and other externalizing behaviors. Specifically, harsh parenting appears to be associated with socioemotional maladjustment for children and later in life as adults. Some of the negative effects of harsh parenting that have been found include poor academic performance, problems with emotional adjustment, poor peer relations, social maladjustment, and aggressive behavior (Chang, Schwartz, Dodge, & McBride-Chang, 2003; Deater-Deckard & Dodge, 1997; Weiss et al., 1992).

#### *Theories Linking Harsh Parenting and Child Aggression*

Two classic theories have been used to try to understand how parenting influences children's social adjustment and levels of aggression. These theories include Albert Bandura's Social Learning/ Social Cognitive Theory and Gerald Patterson's Developmental Model of Antisocial Behavior. Understanding these theories provides a history of how psychologists have tried to explain the link between harsh parenting and children's behavior. Although the current study did not directly investigate either of these theories per se, many of the concepts introduced in these theories lay the foundation for mechanisms that were investigated in the current study.

*Bandura's Social Learning and Social Cognitive Theories.* Albert Bandura's Social Learning Theory (Bandura, 1977) places an emphasis on the child's environment, especially familial experiences, in understanding children's social development. In this theory, the focus is on the child's learning, which can take place vicariously through viewing the consequences of others' actions and can also take place through reinforcement, modeling,

and direct instruction. For this observational learning to take place, it is important that the child be able to attend to what is being learned and retain information from experiences. Retention is often aided by processes such as rehearsal, repetition, imitation, and elaboration. The child must also be able to recall information from memory when appropriate and cognitively organize information so that it matches the model's behavior. Bandura, Ross, and Ross (1963) investigated the influence of response consequences on imitative learning of aggression among nursery school children. The investigators found that children who witnessed aggressive models receive rewards showed more imitative aggression and preferred to imitate the successful aggressive model rather than models that were punished. This study demonstrated that children were able to learn behavior vicariously by observing the rewards and punishments received by models.

Bandura's Social Cognitive Theory (1989), an expansion of his previous social learning theory, portrays the child as much more active in the learning process. This theory emphasizes the role of self-direction for the child and the capacity of forethought (how we cognitively represent the future). Social cognitive theory also emphasizes the triadic reciprocal relationship among behavior, the person (biological, cognitive, and other internal events) and their environment. Bandura indicates that parents serve as models that influence children's symbolic representations of the world and what children believe will happen based on previous observations and experiences. Thus, children whose parents demonstrate harsh aggressive parenting behavior in the home may be more likely to expect aggressive behavior from their peers based on their own previous experiences. These children may be more likely to attribute hostile intentions to peers in ambiguous social situations.

*Patterson's Developmental Model of Antisocial Behavior.* In 1984, Patterson, Dishion, and Bank presented a model that described how family interaction can promote deviancy. The model describes the influence of disorder in parenting practices on irritable interactions between the target child and other family members, and the reciprocal nature of this relation. The investigators hypothesized that disrupted parental discipline and irritable social exchanges among family members provide a basic training for aggression. According to Patterson et al.'s (1984) model, children who develop in this environment are more likely to be identified by peers, teachers, and parents as physically aggressive. The authors sought to provide empirical support for the model by investigating parental discipline, negative microsocial exchanges, physical fighting, and poor peer relations using families of 91 fourth, seventh, and tenth grade boys. Structural equation modeling was used to examine relations among the constructs and revealed support for the hypothesis that negative family interaction may serve as a basic training for aggression.

Patterson, DeBaryshe, and Ramsey (1989) suggested that children who receive “antisocial training” from the family during their preschool and elementary years are more likely to be denied access to positive socialization forces in their peer groups. In turn, children who do not have positive socialization forces in the peer group may have limited or negative social experiences which can lead not only to limited problem solving abilities but also a limited understanding of social cues. One of the common characteristics of the families that portray the coercive parent-child interactions is that prosocial behaviors often go unrewarded and thus are not reinforced. This theory also suggests that the children who display antisocial behaviors are also often socially unskilled. This skill deficit can lead

children to generate fewer solutions to problems and choose more aggressive solutions to problems due to their limited repertoire of appropriate problem solving strategies.

### *Children's Aggressive Behavior Related to Harsh Parenting*

This section provides an overview of studies that have supported the theoretical notion that parenting influences children's levels of aggression. Several empirical studies investigating the relation between harsh parenting are discussed. These studies demonstrate that a relation between harsh parenting and childhood aggression has been found in children at differing ages, within different cultures and ethnic groups, and within different socioeconomic groups.

In 1992, Weiss, Dodge, Bates, and Pettit sought to investigate whether harsh physical discipline was predictive of aggressive behavior in children. Participants were parents pre-registering their children for kindergarten. The participants for the study were demographically diverse, including African Americans and Caucasians from various regions, communities, socioeconomic groups, and family types (single parent and two-parent households). Home interviews occurred during the summer prior to the beginning of kindergarten. Based on information collected during these interviews, the investigators generated ratings of the probability that the child had experienced physical abuse and the severity of restrictive and harsh physical punishment used by the parent (s). Consistent with the current study, Weiss et al. (1992) conceptualized harsh parenting as a continuous construct for the following reasons. First, they suggested that a continuum may be a more accurate representation of reality. Second, they suggested that dichotomizing a continuous variable often results in a loss of statistical power. Third, they stated that physical discipline

is almost universal, and thus it could be valuable to understand the effects of the full range of physical harm from not occurring at all, to harsh discipline, to abuse.

Weiss et al. (1992) obtained parent ratings reflecting child aggression and early child temperament characteristics. School-based data collection occurred approximately six months later. Teacher ratings, peer ratings, and behavioral observations were used to identify children who demonstrated aggressive behavior in the school setting. Bivariate correlations were conducted and determined that severity of discipline was significantly correlated in the positive direction with parent ratings of aggression as well as school based data reflecting aggression scores for each group. The researchers also tested whether the relation between harsh discipline and school aggression was moderated by child gender, socioeconomic status, and family composition. Results of a chi-square analysis revealed that the relation between harsh discipline and child aggression did not differ on the basis of gender, SES or family composition.

Weiss et al. (1992) also found that the correlation between harsh parenting and later child aggression remained significant even when controlling for temperament. This is important because most studies investigating parenting behavior and children's social adjustment involve correlations, which cannot test causation. Therefore, it could be argued that parents with children who have difficult temperaments may be more likely to use harsh discipline. Thus, demonstrating a relation between harsh parenting and childhood aggression, while controlling for temperament, weakens this argument. The relation between harsh parenting and childhood aggression was found even when parents did not report a difficult early child temperament.

Some investigators have examined several dimensions of harsh parenting, and findings suggest that different dimensions may yield unique outcomes in terms of externalizing and internalizing behaviors. Stormshak, Bierman, McMahon, Lengua and The Conduct Problems Prevention Research Group (2000) conducted a study to investigate parenting practices and child externalizing behavior problems in a large, diverse, “high risk” population of early elementary school students and their parents. This project was designed to examine the developmental progression of externalizing behavior problems and the effectiveness of a prevention program. The study focused on five parenting practices that have been associated with the development of disruptive behaviors, including (a) punitive discipline (yelling, nagging, threatening), (b) inconsistency in follow through of commands, (c) lack of warmth and positive involvement, (d) physical aggression (hitting, beating), and (e) spanking. Participants included 631 children and their parents who were selected for inclusion in a longitudinal project. Participants were selected from four different areas of the United States to represent a cross-section of American culture. Parent interviews were conducted to elicit reports of the five parenting practices and to elicit reports of child externalizing problems.

Results of the Stormshak et al. (2000) study, relevant to the current study, revealed that punitive discipline was correlated with all of the dimensions of child behavior, including oppositional, aggressive, hyperactive, and internalizing behavior. Parents who reported using punitive discipline tactics, such as yelling and verbal threats, also reported high levels of behavior problems in their children. Spanking predicted all three dimensions of externalizing behavior (oppositional, aggression, and hyperactive), but did not predict internalizing behavior problems. In hierarchical regression analyses, punitive discipline predicted all of

the externalizing behaviors, as well as internalizing behavior problems. Physically aggressive parenting was most strongly associated with aggressive behavior problems in children, whereas warmth/involvement was inversely correlated with oppositional behavior. These findings suggest that the differing dimensions of harsh parenting share some commonalities in predicting externalizing behavior, but may differ in their prediction of internalizing problems.

Each of the studies reviewed in this section have been empirical studies demonstrating a relation between harsh parenting and child aggression. In a highly cited article, Deater-Deckard and Dodge (1997) extensively reviewed literature that investigated the association between harsh physical discipline and child aggression to enhance understanding of how and when discipline practices have the largest impact on children's behavior. Deater-Deckard and Dodge found that numerous studies supported the hypothesis that harsh discipline, especially when it involves severe physical punishment, promotes aggressive behavior in children. The major correlates of aggression found were poor-quality parenting, specifically erratic, harsh, and punitive discipline.

In sum, a substantial number of studies have demonstrated a relation between harsh parenting and childhood externalizing behaviors such as aggression. This relation existed even when controlling for temperament in one study (Weiss et al., 1992). Some studies conceptualize harsh parenting in dimensions. In Stormshak et al.'s (2000) study, the various dimensions of harsh parenting shared commonalities in predicting externalizing behavior, but differed in their prediction of internalizing problems. Physically aggressive parenting was most strongly associated with aggressive behavior problems in children. Deater-Deckard and Dodge (1997) conducted a review of previous studies and found substantial support for the

relation between harsh parenting and childhood aggression. The review also indicated that this relation appeared to be stronger when the harsh parenting involved severe physical punishment. Studies involving maltreatment in the form of physical abuse, representing severe harsh parenting, are discussed further in the following section.

### *Physical Abuse as a Severe Form of Harsh Parenting*

The current study involved a significant number of children with a history of substantiated physical abuse; therefore, it is important to review relevant literature that focuses on this subgroup of children. This section provides an overview of findings concerning factors that influence outcomes of maltreatment, including severity and subtypes of abuse and age of onset, with particular focus on physical abuse as the most relevant subtype to the current study. Findings with regard to the relation between physical abuse, externalizing behavior, and social status are also discussed. Finally, long-term consequences of physical abuse are addressed.

Physical abuse is a type of maltreatment and represents a severe form of harsh parenting. Maltreatment, especially in the form of physical abuse, has been found to have substantial negative consequences for children's social adjustment (Dodge, Pettit, Bates, & Valente, 1995; Salzinger, Feldman, Ng-Mak, Mojica & Stockhammer, 2001; Trickett, 1993). To illustrate, Manly, Kim, Rogosch, and Cicchetti (2001) investigated dimensions of child maltreatment and social adjustment in a naturalistic setting. The participants for the study included 814 children, including 492 maltreated children, between the ages of 5.5 and 11.5 years who attended a summer day camp. The investigators were interested in similarities and differences among children who experienced subtypes of maltreatment, including physical abuse, emotional maltreatment, physical neglect, and sexual abuse. The investigators coded

information from Child Protective and Preventative records for the absence or presence of the four subtypes of maltreatment, severity, and age of onset. Children's behavior and peer interactions were assessed during the day camp as they participated in a variety of age-appropriate recreational activities. Each week counselors completed a scale that assessed broadband externalizing and internalizing behaviors. In addition, they completed a behavior checklist to assess aggressive, withdrawn, and cooperative behavior in peer interactions. Camp counselors interviewed children individually using a sociometric measure to assess children's perceptions of each other.

Counselors' behavior ratings revealed that maltreated children were more aggressive, more withdrawn, and less cooperative than nonmaltreated children. The peer evaluations also demonstrated that maltreated children were perceived as more aggressive, more disruptive, and less cooperative than the nonmaltreated children. Further, findings indicated that maltreatment occurring during infancy to toddlerhood had a long-term impact on later middle childhood, even if the maltreatment was only reportedly occurring during this time period. Maltreatment with an onset during preschool was also found to have deleterious effects, regardless of a previous benign history during infancy. Results also revealed evidence that the impact of the severity of maltreatment occurring in the first three years of life was mediated by maltreatment occurring subsequently. Of particular interest to the current study, results revealed that children who had substantiated reports of physical abuse during preschool demonstrated higher levels of externalizing behaviors than comparison children without a known history of abuse. Severe physical abuse during preschool was a significant predictor of high levels of aggression and disruptive behavior as rated by counselors (Manly et al., 2001).

In sum, the Manly et al. (2001) study revealed maltreated children were more aggressive, more disruptive, and less cooperative compared to nonabused peers. They were also less well liked by their peers and had lower social status. Salzinger, Feldman, Ng-Mak, Mojica and Stockhammer (2001) examined processes that provide a link between physical abuse and social status. They found support for a model in which children's externalizing behavior and social expectations mediated the relation between abusive experiences and social status. The investigators tested this model using 100 physically abused school children, ages 9-12 years in the fourth, fifth and sixth grades, and 100 nonabused classmates matched on gender, age, race, ethnicity, and socioeconomic status. Same-gender peer nominations were used to assess social status. Externalizing behavior was assessed by parent and teacher ratings and the average of same-gender peer ratings of physically and verbally aggressive behavior. Results revealed that the effect of abuse on social status was mediated by children's behavior and social expectations. The abused children were more likely than comparison children to behave aggressively and less likely to engage in prosocial behavior. Aggressive behavior was found to play a significant role in the relation between abuse and social status.

The consequences of physical abuse are not only found in social status and adjustment with peers as children. Physical abuse also has been related to adjustment problems into adulthood (Higgins & McCabe, 2003; Knutson, 1995; McCord, 1983; Miller & Knutson, 1997). Bank and Burraston (2001) investigated some of these consequences by examining concurrent and longitudinal data for 182 Oregon Youth Study (OYS) boys across a variety of developmental outcomes over a 10-year span, beginning in the fourth grade. The

boys represented a high-risk community sample, selected through randomly choosing schools from high juvenile crime areas in a metropolitan area.

It was hypothesized that abusive home environments would be predictive of later aggression, antisocial behavior, depression, substance abuse, and trauma. The respondents included the boys in the study and their parents, teachers, school peers, interviewers, and observers. Results indicated that abuse correlated with negative outcomes in adolescence and early adulthood. These outcomes included depressed mood in the seventh grade; self-reported violent crime from seventh to eleventh grade; poor academic skills, antisocial behavior, delinquency, and substance abuse in the tenth grade; and arrests for violent offenses and physical aggression towards a partner in early adulthood (Bank & Burraston, 2001).

In sum, harsh parenting behaviors in various forms ranging from spanking to physical abuse have been found to be associated with several negative outcomes, including externalizing and internalizing behaviors. There is strong evidence suggesting a relation between physical abuse and externalizing behavior problems, such as aggression and disruptive behavior. These adjustment problems have been perceived by both adults and the peers of abused children (Manly et al., 2001). Physical abuse has also been found to be related to negative outcomes into early adulthood (Bank & Burraston, 2001). Due to the strong evidence suggesting a relation between harsh parenting and child aggression, the current study sought to assist in understanding possible mechanisms that may mediate this relation. A central goal of the current study was to investigate social information processing operations as potential mechanisms that may mediate the relation between harsh parenting

and childhood aggression. These operations will be explained in detail in the following section.

### *Social Information Processing as Predictor of Child Aggression*

Many recent studies have been designed to investigate elements of the social information processing model to understand how these operations influence children's tendency to engage in aggressive behaviors. Crick and Dodge (1994) reviewed research on the relation between social information processing and social adjustment in childhood, and they presented the framework of a reformulated model of social interaction. The authors suggested that overwhelming evidence supported the empirical relation between characteristic processing styles and children's social adjustment. The reformulated social information processing model of children's social adjustment includes:

- (1) *Encoding of cues* (both external and internal): during this phase children selectively attend to particular situational and internal cues.
- (2) *Interpretation of cues*: during this phase the child makes causal attributions, intent attributions and conducts other interpretative processes to apply meaning to the cues.
- (3) *Clarification of goals*: after interpreting the situation, children select a goal or desired outcome for the situation.
- (4) *Response access or generation*: children access from memory possible responses to the situation, or if the situation is novel, they may construct new behaviors in response to immediate social cues.
- (5) *Response decision*: children evaluate the previously accessed responses and select the most positively evaluated response for enactment.
- (6) *Behavioral enactment*: the chosen response is behaviorally enacted.

Crick and Dodge (1994) suggested that the processing operations that are likely to have the most substantial impact on children's aggression include hostile attributional biases, intention cue detection accuracy, response generation patterns, and evaluation of response outcomes. The focus of the current research includes three of the operations involved in social information processing that have been linked to aggressive behavior in children, including attributions of intent, response generation patterns, and response decision.

The social information processing model was intended to help understand social interactions among people, in general. Dodge and Price (1994) hypothesized that measures of the five steps of the processing model would correlate significantly with competent performance within each set of relevant, problematic social situations for children. For their sample, they used a relatively even number of girls and boys from 13 classrooms in a public school, including first, second, and third graders. Forty percent were African American and 60% were Caucasian. Participants came from varied socioeconomic backgrounds. Behavioral competence was assessed using teacher ratings and peer nominations.

To assess the five steps of social information processing, a problematic event was presented in vignettes that depicted events such as a child attempting to initiate play with a peer and being rejected by another peer or peer group (*peer-group-entry scripts*), or a child being provoked by another peer by taking his or her turn (*peer-provocation scripts*), or an adult directing the child in the vignette to engage in an unpleasant behavior (*authority-directive scripts*). There were three versions of each script, in which the intent of the peers or adult varied as hostile, nonhostile (either benign or accidental), or ambiguous (Dodge & Price, 1994).

After viewing the vignette, the children were asked several questions to assess the different steps of the model. To assess encoding, the child was asked what happened in the story, which was scored according to the degree of attention to relevant information. To measure intent attributions, the child was asked whether the other child or adult in the vignettes was being mean or not being mean. Hostile bias was determined by the proportion of times the subject interpreted an ambiguous or nonhostile cue as being hostile. For response generation, the child was told the intention of the other person in the vignette and asked what he or she could say or do if this happened to them in a real situation. The fluency of the response search was determined by the mean number of unique responses generated to three vignettes. To measure aggressiveness, the proportion of all aggressive responses generated for a vignette was tallied, and the mean proportion across all nine vignettes was computed. For response evaluation, each child was presented with three different response strategies for each vignette, including a competent response, an aggressive response, and a self-centered response. The child was then asked to evaluate the interpersonal (affiliative) and instrumental (effective) outcomes that were likely to happen. For enactment, the child was asked to role-play a competent response to an event and their observed behavior was then rated by the interviewer (Dodge & Price, 1994).

Results supported the authors' hypothesis that social information processing variables would correlate significantly with measures of behavioral competence in children from a general population. In addition, multivariate analysis revealed that behavioral competence at peer group entry was significantly predicted from the set of 11 processing variables in that domain. A hierarchical analysis revealed significant or marginal increments in the prediction

of high competence from processing variables at steps 1 (encoding), 3 (response generation), and 4 (response evaluation) (Dodge & Price, 1994).

Most studies investigating social information processing operations utilize methodologies very similar to the Dodge and Price (1994) study. This methodology includes presenting the participants with a series of hypothetical vignettes representing peer conflict with the intent of the provocateur varying from benign, to ambiguous, to hostile. The vignettes are generally followed by questions from a trained interviewer aimed at addressing various steps of the social information processing model. Due to similarities across studies, methodology for the following studies will not be described in detail.

Unlike the previously reviewed study, most studies investigating social information processing operations involve targeted groups that demonstrate some socioemotional concern, such as the focus in the current study on harsh parenting and aggression in children. For example, Quiggle, Garber, Panak, and Dodge (1992) examined social information processing in aggressive and depressed children to determine the unique patterns that may exist for the two different childhood problems. The study involved 220 children (104 boys and 116 girls) in the third through sixth grade. Aggressive students were identified based on teacher ratings. Several social information processing operations were assessed, including attribution of intent, response generation, and response evaluation.

Results indicated that aggressive children were significantly more likely than nonaggressive children to attribute hostile intent to another child. In addition, univariate analyses indicated that in comparison to their less aggressive peers, aggressive children reported that they would be more likely to use aggressive responses and that aggression would be easier for them to use. In sum, aggressive children demonstrated a hostile

attributional bias, were relatively more likely to report that they would engage in aggressive behavior and would find it easy to aggress, and showed a tendency toward evaluating aggressive behavior more favorably than did their nonaggressive peers (Quiggle et al., 1992).

“Theoretically, a core assumption of the social information processing model is that aggressive behavior does not result exclusively from preemptive information processing, but rather from different information processing” (Orobio de Castro, Bosch, Veerman, & Koops, 2003, p.155). To investigate the notion of unique processing patterns in aggressive children, Orobio de Castro et al., (2003) examined the effect of “stopping to think” among aggressive and nonaggressive boys when responding to ambiguous provocations. The authors compared two groups of boys who were 7 to 12 years of age from the Netherlands, including an aggressive group ( $n=31$ ) of boys in special education for severe behavior problems and a comparison group ( $n=32$ ) of boys in regular education. Two parallel sets of four audio taped vignettes of a provocation by a peer were presented to participants in random order and then coded for aggressiveness of responses. All vignettes involved being hindered by a peer whose intentions were ambiguous.

Results revealed that questions concerning the provocateur’s feelings and intentions appeared to have different effects for aggressive and comparison boys. For the aggressive group, delaying their response appeared to increase aggressive responses rather than decrease them. However, for the nonaggressive comparison boys, delaying their response decreased aggressive responses. These findings support the notion that, when considering the intent of peers in ambiguous situations, children with aggressive tendencies appear to be more likely to attribute hostile intentions and therefore, choose aggressive responses. Consequently,

stopping to think about a peer's intent may actually allow the child to attribute hostile intent to their peers more often than nonaggressive children and, therefore, increase their tendency to respond aggressively (Orobio de Castro et al., 2003). The results of this study suggest that aggressive children's tendency to attribute hostile intent to aggressive situations may not be due to simply lack of consideration, but a different way of thinking.

As demonstrated by previous studies in this section, childhood aggression appears to be predicted, at least partially, by impaired social information processing. Aggressive children were more likely to report that they would engage in aggressive behavior in conflictual situations and tended to evaluate aggressive behavior more favorably than did their nonaggressive peers (Quiggle et al., 1992). Aggressive children were also more likely than nonaggressive children to attribute hostile intent in ambiguous situations, thus demonstrating hostile attributional biases (Orobio de Castro et al., 2003; Quiggle et al., 1992). Response generation, response decision, and intent attributions are the social information processes of particular interest for the purposes of the present study. Thus, the following sections review studies involving these processes in further detail.

### *Intent Attributions*

In 1980, Kenneth Dodge published a pioneering study derived from his doctoral dissertation. This study was based largely on moral-judgment literature, which demonstrated the importance of social cognitions in inhibiting defensive aggression. Dodge stated that this literature asserted that "when a person perceives that a peer is intentionally causing a negative outcome, that person's modal response is aggression against the peer" (Dodge, 1980, p. 162). He suggested that a possible explanation of persistent aggressive responding to nonintentional negative outcomes by a child may be cue distortion, or the

tendency for a child to make a distortion in the perception of intention which is related to his expectation about the intention of others. Thus, it was hypothesized that, given a negative outcome, an aggressive child would most likely attribute a hostile intention to a peer and retaliate aggressively when the peer's intentions were ambiguous.

To test this hypothesis, Dodge (1980) conducted two studies using a sample of 15 aggressive and 15 nonaggressive boys in each of the second, fourth, and sixth grades for a total of 90 boys. The participants were taken to a trailer and asked to put a puzzle together for a prize. They were told that another boy in an adjoining room, who they could not see, would also be working on a puzzle but that they would not be competing. In reality, there was no other boy, but there was an audio simulation of another boy participating. After the participant had partially assembled the puzzle, the experimenter stopped for a break and suggested allowing the other "pretend" boy to see what the participant had done. The puzzle was then destroyed, supposedly by the other boy. On the tape recorder, the other boy verbally appeared to be either a hostile peer, an ambiguous peer, or a benign peer. Aggressive and nonaggressive participants were randomly assigned into groups to determine which type of peer response they would hear.

The results revealed that when a peer's intention was clearly stated, aggressive participants altered their behavior according to the intention as appropriately as did the nonaggressive participants. For instance, aggressive participants did not respond aggressively when the intention was clearly benign. However, in the ambiguous condition, aggressive participants received a significantly higher mean aggression score than did nonaggressive participants, supporting the cue distortion hypothesis that aggressive and

nonaggressive participants differ in their perceptions of intentions of peers in ambiguous circumstances.

In the second study, the interviewer told each participant one of two hypothetical stories and the participant was to place himself in the situation. The stories involved a negative outcome for the participant based on a behavior of their peer. In both stories, the intent of the peer was ambiguous. The participant was asked to describe how the incident might have happened. Consistent with the first study, aggressive participants attributed hostile intention to the peer 50% more often than did nonaggressive participants. Both studies conducted by Dodge supported the notion that aggressive children tend to attribute hostility to others when there is a lack of adequate external social cues upon which to base one's attributions. A type of *cue distortion* that is now often studied within social information processing literature is referred to as *hostile attributional bias* (Price & Glad, 2003).

Attributional biases have been found in children as young as preschool. Katsurada and Sugawara (1998) conducted a study to determine whether aggressive preschoolers tended to have hostile attributional styles. Participants included 68 children, ranging in age from 3 to 5 years. To assess children's attributional tendencies, the participants watched videotaped vignettes consisting of interactions between two children of similar ages. The outcome of the interaction in each vignette was somewhat negative and the intention of the antagonist was notably hostile, notably benign, or ambiguous. The children were asked to tell what they thought happened in the video and to describe the intention of the antagonist. The child's level of aggression was assessed using teacher-report. Results indicated that children's hostile attribution scores were a significant predictor of their teacher-reported

hostile/aggressive scores. Children who made more mistakes on the intention identification task by calling unintentional behaviors "intentional", were more hostile/aggressive.

Therefore, the results supported the hypothesis that aggressive preschoolers were more likely than less aggressive preschoolers to have a hostile attributional bias.

Although previous studies have demonstrated that aggressive children are more likely to attribute hostile intent in ambiguous situations, what takes place in the context of the ambiguous situation may increase the likelihood that physically aggressive children attribute hostile intent. Crick, Grotpeter, and Bigbee (2002) conducted two studies in which intent attributions of physically aggressive and nonaggressive children were compared, one using 825 third grade children and the other using 535 third, fourth, and fifth grade students. Using peer nominations, the researchers identified physically aggressive elementary children. In both studies, these children were then presented hypothetical situations to assess their intent attributions. Consistent with the authors' hypotheses, both studies found that children who were high in physical aggression exhibited more hostile attributions in response to instrumental provocations than did children who were not high in physical aggression. In the second study, a significant main effect for grade was obtained indicating that third and fourth graders exhibited more hostile attributional biases than did fifth graders.

It is apparent that several studies have demonstrated a relation between hostile attributional biases and aggressive behavior. Orobio de Castro, Veerman, Koops, Bosch, and Monshouwer (2002) conducted a meta-analysis of studies published between January 1974 and January 1999 that investigated the relationship between hostile attribution of intent and aggressive behaviors. The authors sought to examine the robustness of findings regarding hostile attributional bias. The aim of the review was to include all empirical studies of

relations between aggressive behavior and hostile attribution of peer intentions in children; therefore, 34% of the effect sizes were derived from unpublished data to control for any possible publication biases. Hostile attribution of intent was defined as “the hostile attribution of intentions to a peer in social situations in which the peers’ intentions are ambiguous or vary systematically for presented situations (Orobio de Castro et al., 2002, p. 918).”

A large set of studies was retrieved by searches in *PsychInfo* and *Dissertation Abstracts Online*, resulting in 394 titles. An additional 80 titles were retrieved from diverse sources such as references to retrieved studies in reviews. To be selected for inclusion, studies had to contain empirical measures of both aggressive behavior and attribution of intent in children; a total of 41 studies with 6,017 participants met the criteria. There were numerous results to this meta-analysis, with a broad scope of implications. However, relative to the current study, the researchers found a robust relation between hostile attributions of intent and aggressive behavior. Effect sizes varied, with larger effect sizes associated with more severe aggressive behavior. Results revealed that effect sizes were stronger for studies with participants who were 4 to 6 and 8 to 12 than in studies that included children ages 6 to 12 and over 12 years of age, indicating varying results in studies with regard to the range of ages in participants (Orobio de Castro et al., 2002).

#### *Response Generation and Response Decision*

In addition to hostile attributional biases, studies have suggested that aggressive children tend to generate fewer solutions to conflictual social situations and are more likely to choose aggressive responses. Because many of the studies investigating these two processes do so simultaneously, this section will address findings for both response

generation and response decisions among aggressive children. Response generation can be measured in a number of ways. Some studies simply assess the total number of responses that a child can generate to represent their response access skills, while other studies focus on the total number of types of solutions that a child can generate. The present study focused on the latter of these strategies, investigating the total number of types of solutions that children are able to access in a conflictual situation.

An example of a study that also focused on types or categories of solutions as the main outcome variable is a study conducted by Mayeux and Cillessen (2003), who investigated social problem solving and social competence in kindergarten and first grade boys in the Netherlands. Based on peer ratings, boys were categorized as popular, rejected, controversial (liked and disliked), neglected, or average. After hearing a series of stories that involved social conflict, the child was asked what the boy in each situation could do. Based on their coded responses, eight categories or types of responses were distinguished: requesting that a solution be reached, displaying antisocial behavior, showing assertiveness, avoiding conflict, avoiding a solution, requesting help from others, exhibiting prosocial behavior, and using manipulation.

One goal of Mayeux and Cillessen (2003) was to provide a general description of the social problem solving strategies used by kindergarten and first grade boys. Results demonstrated that about one-fourth of the solutions the boys generated were prosocial and another one-fourth fell in the category of requesting solutions. The next most frequently used types of solutions were avoiding solutions, followed by antisocial problem solving. The investigators found that older boys suggested both more types of responses and more effective solutions than their younger peers. Boys in this study were not categorized as

aggressive and nonaggressive; instead the investigators used popularity as a measure of social competence. Results revealed that popular boys were more likely than less popular peers to request that a solution be reached, to be assertive, and to respond prosocially. Popular boys also were less likely to suggest ineffective solutions such as avoidance and manipulation. These findings appear to support the notion of a relation between response generation and peer acceptance, an indicator of social competence.

Once children have generated solutions to a problem, they must then determine which response to utilize. This response decision is generally made based on the child's appraisal of the responses generated. Crick and Werner (1998) investigated response decision processes of aggressive children. They used a hypothetical-situation instrument involving peer-related conflict for 1,166 third through sixth grade children. To assess response decisions, children were asked to indicate on a 5-point scale how often they would use the given strategies in response to each conflict story. Results revealed that overtly aggressive children evaluated overt aggression in instrumental conflicts significantly more positively than did nonovertly aggressive children. In addition, overtly aggressive children evaluated overt aggression more positively in relational conflicts than did nonovertly aggressive children. Although it is difficult to know which solutions the children in this study would have chosen in a real-life conflict, the results indicate that in choosing a response decision in hypothetical situations, aggressive children evaluated aggressive decisions more positively than did nonaggressive children.

Some investigators measure the response decision processes by asking how the child evaluates a solution, and also by asking which solution he or she would choose. One study conducted by Fontaine, Burks, and Dodge (2002) addressed this issue by asking the

participants how they would choose to respond to conflicts portrayed in vignettes. The authors suggested that deviant response decision operations may contribute to the maintenance and growth of aggressive behavior. Another goal of the study was to examine two processes involved in the response decision step (a) *response evaluation*: assessing response options according to evaluation criteria, and (b) *response selection*: selecting a response for behavioral enactment. It was hypothesized that adolescents who evaluated their own aggressive responses favorably across various domains and selected aggressive responses for behavioral performance were more likely to develop and maintain aggressive behavioral styles.

The participants watched a series of video vignettes and were asked how they would respond to the portrayed event. The participants then viewed a vignette in which the actor portrayed an aggressive response; they were then asked several questions to investigate how participants evaluated potential outcomes and how they would respond to the portrayed event. The investigators measured participants' externalizing behavior through maternal ratings and self-report ratings. Results revealed significant correlations between response evaluation and both response selection and outcome expectancy. Participants who selected aggressive behavior or expected positive outcomes for aggressive responses were more likely to make positive evaluations about their aggressive responses, relative to peers. In contrast, results revealed no significant correlations between response selection and outcome expectancy.

As demonstrated in previous research, most studies investigating response generation involve asking the children what they could do in the hypothetical situation and consider that the number of responses produced and type of responses produced represent each child's

repertoire of possible solutions in a given conflictual situation. Rudolph and Heller (1997) sought to build upon previous research that suggested impaired problem solving may undermine peer competence, particularly for children with externalizing behavior problems such as aggression. The authors suggested that there may be a conceptual distinction between response access/production and response availability. Specifically, younger children may initially give impulsive responses that under-represent their repertoire of socially competent strategies. The authors predicted that preschoolers would demonstrate increased knowledge about prosocial strategies following directive probes. The authors compared problem solving strategies between children with and without externalizing behavior problems, and investigated the relationship between children's interpersonal problem solving skills and their social adjustment at school.

Using 32 preschoolers of mixed ethnicity, the authors assessed interpersonal problem solving using a series of hypothetical vignettes depicting typical challenging peer situations. First, the experimenter simply asked what the child's puppet could say or do. Second, the experimenter reenacted the original scenario and altered the prompt by saying "What is the nicest thing that [the child's puppet] could say or do?" Additional prompts for socially competent strategies were provided until either the response met criteria for a prosocial strategy or the child had been prompted five times. The results revealed that the children in both the externalizing group and the nonsymptomatic group provided increasingly more prosocial strategies across prompts. However, nonsymptomatic children produced a greater number of prosocial strategies than did the children with externalizing behavior at the initial prompt and continued to produce a significantly greater number of prosocial strategies by the final prompt. In addition, children who scored highly on externalizing behaviors tended to

demonstrate less prosocial strategies and more aggressive strategies (Rudolph & Heller, 1997).

In sum, impairments in social information processing operations, such as encoding, generating responses, and evaluating responses, are related to children's behavioral competence (Dodge & Price, 1994; Quiggle et al., 1992). Specific to the current study, intent attributions, response generation abilities, and response decision propensities appear to be related to aggressive behavior in children. A substantial number of studies have demonstrated a link between hostile attributional biases and aggressive behavior in children (Crick, Grotpeter, & Bigbee, 2002; Dodge, 1980; Katsurada & Sugawara, 1998; Orobio de Castro et al., 2002; Orobio de Castro et al., 2003). Aggressive children also generate fewer solutions and more aggressive solutions in situations involving a problem or conflict than do their nonaggressive peers (Dodge & Price, 1994). Children who demonstrate less prosocial strategies score high on externalizing behaviors (Rudolph & Heller, 1997). In addition, children who demonstrate aggressive behavior are more likely to evaluate aggressive responses more favorably, which can make them more likely to choose aggressive responses when presented with social conflict (Crick & Werner, 1998; Fontaine, Burks & Dodge, 2002).

In the present study, the relation between social information processing operations (intent attributions, response generation, and response decision) and childhood aggression were further investigated using a sample of children ranging in age from 5 to 10 years. This age range is similar to the ages of the children in the Crick, Grotpeter and Bigbee (2002) study, which included third, fourth and fifth graders in the sample. The current study also included children as young as 5 years of age due to findings that hostile attributional biases

can be found in children as young as preschool (Katsurada & Sugawara, 1998). Similar to many of the studies that have been discussed, the current study used hypothetical vignettes of peer related conflicts to assess attributional dispositions and their relation to aggressive behavior. In the current study, aggression was measured using multiple methods, including teacher-report and behavior observations. Peer nomination, however, was not be utilized as a means for identifying aggressive students. Although peer nomination may be a relevant means for identifying aggressive behavior in children, using peers may render ethical concerns about the ramifications of the nomination process after data collection. Much of the previous research has excluded girls, thus the participants for this study included boys and girls, as well as children from a variety of ethnic and socioeconomic backgrounds.

#### *Parental Discipline and Social Information Processing*

Given the relevance of social information processing in childhood aggression, there is a need to understand how differences in social information processing may develop. Parental discipline practices have been found to be associated with children's social information processing operations. Research has suggested that children of parents who demonstrate harsher parenting practices tend to attribute more hostile intent to ambiguous peer behavior, produce fewer solutions to hypothetical situations, and choose more hostile solutions (Hart, Ladd & Burleson, 1990; Haskett, 1990; Trickett, 1993; Weiss et al., 1992). Degrees of harsh parenting can differ, with maltreatment representing the extreme. In this section, studies investigating harsh parenting, including physical abuse, and its influence on social information operations are outlined and discussed in detail.

Hostile attributional biases have been found among maltreated children as demonstrated by Price and Glad (2003) who sought to examine the hostile attributional

tendencies of maltreated children. Their sample consisted of 100 children (51 females) who were an average age of 6.5 years. Their sample involved children representing a variety of ethnicities. Forty-four of the children had been legally identified as maltreated and 56 children served as a nonmaltreated comparison group. To assess hostile attributional tendencies, the researchers presented the children with familiar and unfamiliar relationship figures as social stimuli in a series of stories representing situations where there was negative outcome for the child, but the intent of the figure in the story was ambiguous. The relationship figures in the hypothetical stories included the participants' parents, an unfamiliar teacher, the participant's best friend, and unfamiliar peers.

The results revealed that there was greater similarity in hostile attributional tendencies across relation types for physically abused children than for nonmaltreated children. Physically abused boys were more likely than nonmaltreated children to attribute hostile intentions to a variety of relationship figures. Additionally, a positive relation was found between the frequency of physical abuse and hostile attributional tendencies among males. Boys who were abused more frequently demonstrated the highest attributional tendency scores for the relationship figures. There was also a linear effect for relationship figures, with children attributing more hostility to best friends than to adult relationship figures, and more hostility to unfamiliar peers than to adult relationship figures or best friends (Price & Glad, 2003). The results of this study support the notion of a relation between harsh parenting in the form of physical abuse and hostile attributional tendencies, with maltreated children appearing to generalize hostile intent across a variety of relationship figures.

Harsh discipline strategies have not only been found to be related to hostile attribution tendencies, but also have been associated with impaired response decision processes. Hart, Ladd, and Burleson (1990) conducted a study to determine whether children's expectations for outcomes of friendly and unfriendly strategies could be predicted from their mother's disciplinary style. The researchers identified two major types of disciplinary strategies, *induction* and *power assertion*. They explained that *inductive* disciplinary strategies not only make claims, but also provide a rationale to support the claims (i.e., "You shouldn't call Johnny names because it hurts his feelings"). On the other hand, *power-assertive* disciplinary styles, such as physical punishment and threats, focus almost exclusively on getting the child to comply without much consideration for the psychological consequences for the child or the relationship. The authors suggest that parents who rely on power-assertive approaches may inadvertently model power-assertive strategies as an efficacious means of resolving interpersonal issues. Thus, it was anticipated that children with power-assertive mothers would be more inclined than children whose mothers use inductive disciplinary strategies to expect positive outcomes for unfriendly means of resolving peer conflicts.

To assess the relationship between maternal disciplinary strategies and children's expectations for social strategies, mothers of 144 first and fourth graders were asked how they would respond to six hypothetical situations that described disciplinary contexts. Children were presented with two hypothetical conflict situations and 24 conflict-resolution strategies, including friendly and unfriendly strategies that varied with respect to their assertiveness. They were then presented with positive and negative outcomes for each strategy and asked whether or not the other child "would get mad" at them for each strategy.

Results revealed that children of mothers who were more power-assertive and exhibited more harsh discipline styles expected more optimal outcomes for unfriendly, hostile strategies in resolving peer-conflict (Hart, Ladd, & Burleson, 1990). This study demonstrated impaired *response decision* processes among children of parents with harsh discipline styles. Children who were more likely to expect positive outcomes for unfriendly behavior tended to be more likely to choose unfriendly responses during peer conflict, including possibly aggressive responses.

Prior to deciding on a response, children must generate possible solutions to a given conflict, represented in *response generation*, the third step of the social information processing model. Differences in response generation between children who have experienced harsh parenting and comparison children have been found in research investigating problem solving skills. For instance, Haskett (1990) conducted a study of social problem solving skills among young physically abused children using nine abused children and nine matched/comparison children. To control for the contribution of other extraneous variables in predicting social problem solving, the children were matched one-to-one on chronological age (ranging from 4 years 6 months to 6 years 6 months), gender, race, level of intellectual functioning, verbal comprehension, monthly family income, and mother's marital status. It was hypothesized that abused children would be more deficient than nonabused children in resolving hypothetical conflicts with parents and peers.

The children were administered the Preschool Interpersonal Problem Solving Task (PIPS) to assess their ability to generate relevant solutions to two types of hypothetical problems. Five scores were generated on the basis of solutions produced: (a) number of unique relevant solutions generated by the subject for all stories, (b) Force Ratio (derived by

dividing the total number of different forceful responses [Force-Grab, Physical Attack, Destroy Property, and Command] by the total number of different relevant solutions), (c) total number of irrelevant verbalizations given during test administration, (d) Negative Repeats and (e) Positive Repeats (both calculated as a measure of flexibility in social problem solving). Results demonstrated that abused children offered significantly fewer types of solutions to hypothetical problems presented to them and repeated negative responses significantly more often than did comparison children. There were no significant group differences in the number of times positive responses were repeated or in the Force Ratio. However, the group difference scores were in the expected direction for the Force Ratio, with abused and comparison children scoring .95 and .40 respectively (Haskett, 1990).

In a similar study, Trickett (1993) investigated problem solving behavior in 58 families with children between the ages of 4 and 11. Half of the children had at least one substantiated instance of child maltreatment and the other half were nonmaltreated. To investigate interpersonal problem solving skills, children were presented with vignettes depicting age-appropriate social conflicts and asked what the child in the vignette could do to solve the problem. The experimenter tallied the total number of high-quality solutions (i.e., sharing, requesting, apologizing, fixing) and the total number of solutions considered to be low-quality (i.e., use of force, verbal aggression). Results yielded no main effect or interactions of the number of high-quality solutions on the interpersonal problem solving measures for abuse status; however, there was a main effect of group status for low-quality solutions, with abused children generating more low-quality solutions.

In sum, studies have demonstrated a relation between harsh parenting practices and impaired social information processing of children. Specifically children who experience

harsh parenting appear to be more likely to attribute hostile intentions to others in ambiguous situations, which may affect the types of solutions that they are able to generate (Price & Glad, 2003). Additionally, children whose parents employ harsh discipline strategies tend to generate fewer solutions to hypothetical problems with peers (Haskett, 1990). They also appear to be more likely to expect optimal outcomes for unfriendly or aggressive strategies, which is associated with the selection of more aggressive responses (Hart, Ladd, & Burleson, 1990). Regardless of whether a child demonstrates deficits in all of the areas of social information processing or only one or two, these deficits can be related to the likelihood of aggressive behavior and difficult interpersonal relations with peers.

*Mediation: Social Information Processing as a  
Link between Harsh Parenting and Child Aggression*

Studies reviewed in previous sections of this proposal have demonstrated a relation between (a) harsh parenting and childhood aggression, (b) social information processing and childhood aggression, and (c) harsh parenting and social information processing. Given the relation demonstrated between these variables, it is feasible to postulate that social information processing acts as a mediator between parenting and social adjustment. Testing for mediation is a current trend in much of the literature investigating the link between parenting and children's social competence with peers, including those children who tend to engage in aggressive behavior. Mize, Pettit and Meece (2000) discussed evidence for five types of mediating processes, including (a) social information processing styles, (b) social cognitive and social learning processes not typically thought of as social information processes, (c) internal working models and related attachment-oriented phenomena, (d)

emotional understanding and the motivational role of emotions, and (e) emotion regulation and dysregulation.

Mize, Pettit, and Meece (2000) outlined important considerations when conducting research involving mediation in the link between families and social competence with peers. They suggested that one major consideration when conducting research on social information processing was whether an aggregate score of social information processing was appropriate or whether individual indexes of social information processing were more meaningful. They commented that investigators interested in aggregated effects of social information processes, conceptualized as working together, may prefer entering all of the indexes for social information processing as one block. On the other hand, they explained “others might argue that findings stemming from the use of an omnibus approach shed little light on specific processes that may be responsible for links between family experience and children’s social competence (Mize, Pettit, & Meece, 2000, p. 146).” They also suggested that the practice of combining variables that reflect potentially different mediation mechanisms may confound, rather than illuminate, family-to- peer socialization processes. One important contribution of the present study is that it addressed this issue by using data from a previous study where an aggregate score of social information processing operations was employed. In the current study, the aggregate score was broken apart and the mediating role of each of the three specified operations was analyzed individually in separate models.

Another critical issue discussed by Mize, Pettit, and Meece (2000) is the problem of shared method variance. The risk for inflating results is greater when using a single informant and a single measurement technique (i.e., using only rating scales.) The authors suggested that future research should avoid the risk of inflating results that demonstrate

mediation by using multiple methods or informants. A strength of the current study, based on this suggestion, was the use of multiple informants (i.e., teachers, parents, and observers) and multiple methods (i.e., rating scales and observation) of measuring child adjustment.

In a study previously discussed, Weiss et al. (1992) examined the relation between harsh parenting and child aggression and found a significant association. The final goal of that study was to investigate whether or not social information processing patterns might mediate the effect of harsh discipline on children's aggressive behavior. The authors investigated four of the processes involved in social information operations. Three of these operations are the focus of the present study, including: (a) the tendency to attribute hostile intent to others' actions (intent attributions); (b) the child's ability to generate responses to conflictual situations (response generation); and (c) the participants' ability to evaluate the consequences and desirability of the various responses, a process that often serves as an indicator of which response a child is likely to choose (response decision). The investigators used an aggregate score of the four social information procession operations to test for mediation. Results indicated that the effect of harsh discipline on school aggression was at least partially mediated by social information processing as an overall construct.

Many of the data collection procedures in the Weiss et al. (1992) study are similar to procedures used in the present study. Similar to Weiss et al., multiple methods and measures were used to assess the constructs of parenting practices and childhood aggression. Also similar to Weiss et al., parenting was conceptualized on a continuum. One aspect that is different, however, is that in the current study social information processing was analyzed with each of the three operations being tested for mediation individually. Each operation, though possibly related, captures different aspects of social information processing.

Therefore, testing each operation individually should reveal whether or not mediation varies across operations.

Mediation also has been assessed with children who have been maltreated, which again, represents a severe form of harsh parenting. Dodge, Pettit, Bates, and Valente (1995) investigated social information processing as a possible mediator of the relation between early physical maltreatment and later conduct problems, using a sample of 584 participants (predominantly European American and African American and relatively equal across gender). Physical maltreatment was defined as injury to a child by an adult that required medical attention or left visible bruises. The researchers used a home interview conducted with parents to identify abused children, unlike many studies that relied on identification through social services. To assess the children's social information processing operations, children were visited in their homes prior to kindergarten, first, second, and third grades. Four separate instruments were used annually to assess children's social information processing patterns. Children's externalizing behavior problems were assessed via teacher ratings.

Results revealed a significant main effect of abuse for conduct problem scores, where abused children's scores averaged two-thirds of a standard deviation higher than nonabused children. Relative to the nonabused group, the abused group demonstrated significantly more encoding errors, hostile attributional biases, accessing aggressive responses to peers, and more positive evaluations of the outcomes of aggression. Of most relevance to the current research, the researchers hypothesized that the effect of early physical abuse on later child conduct problems would be at least partially mediated by social information processing errors. Results demonstrated that the mediation model fit the data significantly better than

the direct effects model, suggesting that the relation between physical harm and conduct problems was better explained by the mediation model. Encoding errors and aggressive response accessing/generation were two mediators with significant paths from physical abuse to conduct problems. Maltreatment was assessed in this study using parental self-report. This methodology may capture harsh parenting that may not have been substantiated through social services. There is a risk, however, for under-identification of maltreatment as well, due to the possibility of parents' hesitancy to report behaviors that they feel may be viewed negatively. Furthermore, this study separated the children as maltreated and nonmaltreated, which dichotomizes parenting. Although this trend is found in a substantial number of studies investigating harsh parenting practices, discipline practices viewed on a continuum, as in the present study, may provide a more accurate depiction of parenting practices.

Most relevant to the current study, Haskett and Willoughby (in press) sought to examine numerous influences on children's social adjustment. Of particular interest was whether parenting was a direct predictor of child social adjustment as well as an indirect predictor through mediating social information processing operations. The investigators expected that an aggregate indicator of social information processing that included children's intent attributions for peer behavior, generation of responses to peer social problems, and choice of solutions in problem situations would predict children's adjustment. Participants included 166 children (50% girls) between the ages 5 and 10 years of age and their parents. Approximately half of the sample included children with substantiated reports of maltreatment. The authors explained that they oversampled children with a history of abuse in order to maximize the ability to detect relations among constructs of interest. The investigators assessed parenting behaviors using both the Conflict Tactics Scale (Straus,

1990) to indicate the frequency with which parents used various discipline strategies and direct observation of parent-child dyads.

Children's social information processing operations were measured in several steps. To assess intent attributions, the investigators used the Home Interview with Children (Conduct Problems Prevention Research Group, 1991a), which was designed to measure children's attributions of intent for peer-related problems, using eight hypothetical vignettes. For each vignette, the child was asked why the peer acted the way he or she did; responses were later coded as Hostile or Benign. To assess response access/generation, the investigators used the Social Problem Solving Measure (Conduct Problems Prevention Research Group, 1991b), which includes eight vignettes depicting a peer conflict. The children were asked to generate solutions to each problem situation.

Children's social adjustment was measured using two methods, including teacher reports on the Social Behavior Scale (SBS) (Haskett & Willoughby, in press) and direct playground observations. Constructs on the SBS that were used in the study included, Overt Aggression, Relational Aggression, and Excluded by Peers. The investigators used trained observers to conduct 30-minute playground observations of the children at their schools six months after all other data were collected. The observers used a 15-second interval recording system, coding the behaviors as indicative of Engaged, Negative Behavior, Rough Play, or Aggression.

Results of structural equation modeling revealed that higher quality parenting significantly predicted more adaptive child social information processing operations and social adjustment. Child social information processing, however, did not aid in the prediction of child social adjustment after controlling for the effects of quality of parenting.

This finding was inconsistent with expectations, thus the researchers postulated several explanations for the inconsistency between their findings and results of previous research. One explanation was that they used an aggregate measure of adjustment that encompassed a wide range of behaviors, whereas the link between social information processing operations and behavior may be weaker when doing this (Mize, Pettit, & Meece, 2000). Another explanation given was that they also used a composite score for social information processing that included three different processes: attribution style, response generation, and response selection. They explained that this decision was consistent with past research; however, they suggested that the use of aggregated social information processing variables may obscure relations between the stages of social information processing and child outcomes (Haskett & Willoughby, in press).

The purpose of the present study was to expand the Haskett and Willoughby (in press) study by addressing some of the explanations for their findings. First, the current study focused on children's levels of aggression as the independent variable, instead of investigating social adjustment as an aggregate construct. Second, each of the social information processing operations was investigated separately as potential mediators of harsh parenting and child aggression. It is possible that investigating social information processing operations independently may better explain the link between parenting and children's social adjustment. Finally, as recommended by Weiss et al. (1992), the present study focused on harsh parenting, instead of an aggregate score of parenting that includes harsh parenting and parental warmth. Similar to the Haskett and Willoughby (in press) study, the current study used multiple measures for each of the constructs, including a direct observation of the children's playground behavior. In fact, the current study used Haskett and Willoughby's

database in order to replicate the study and determine whether or not the changes in measurement of constructs and data analyses yield different results.

### Statement of Problem

Childhood aggression has been found to be related to later life difficulties, including adolescent delinquency, school dropout, substance abuse, psychopathology, unemployment and criminal behavior (Brook, Whiteman, Flinch, & Cohen, 1998; Kokko & Pulkkinen, 2000; Parker & Asher, 1987; Pettit, 2000). Therefore, it is important to understand the risk variables that may be associated with increased levels of childhood aggression. Numerous studies have demonstrated a substantial relation between harsh parenting and childhood aggression (Stormshak et al., 2000; Weiss et al., 1992). This relation is also apparent when controlling for variables such as gender, socioeconomic status, or family composition (Weiss et al., 1992). Higher levels of aggression are also a major concern for children who experience physical abuse, a severe form of harsh parenting (Manly et al., 2001; Salzinger et al., 2001).

Childhood aggression has also been related to difficulties with social information processing operations. Relative to the present study, children whose teachers, parents, and peers rate them as physically aggressive are more likely to attribute hostile intent in ambiguous situations, generate fewer solutions and types of solutions, and choose aggressive responses (Crick & Werner, 1998; Dodge, 1980; Dodge & Price, 1994; Orobio de Castro et al., 2003; Quiggle et al., 1992). Because harsh parenting can be related to social information processing operations (Hart, Ladd & Burleson, 1990; Haskett, 1990; Trickett, 1993; Weiss et al., 1992), it is plausible that social information processing operations might serve as mediators of the relation between harsh parenting and child aggression. Studies have

demonstrated support for the mediating role of social information processing between harsh parenting and child aggression (Hart, Ladd & Burleson, 1990; Price & Glad, 2003). The investigator for the current study sought to expand the literature by modifying the methodology to answer additional questions.

First, studies investigating harsh parenting often dichotomize parenting, by separating maltreated and nonmaltreated children. In reality this separation may not be a natural representation of parenting, which is more logically viewed on a continuum from one extreme to the other. The present study addressed this issue by defining harsh parenting as a continuous variable. Second, social adjustment is often represented as an aggregate score of several facets of adjustment, such as prosocial behaviors, aggressive behaviors, peer rejection, etc. Combining different aspects of adjustment to form a global indicator of social adjustment may conceal important information about various adjustment constructs. In the current study, child aggression is the focal variable being assessed as one aspect of social adjustment.

A third issue is that some investigators who have examined social information processing as a potential mediator have entered all of the operations into analyses as one aggregate construct. Although various operations of the social information processing model are expected to be related, these operations are thought to represent distinct processes within children. To address this issue, the current study investigated each social information processing operation (intent attributions, response generation, response decision) separately. Finally, many of the studies investigating harsh parenting, social information processing, and child aggression relied on a single measure for the various constructs. Multiple informants

help to assure that the data being collected are valid and generalizable. The present study was based on multiple measures of harsh parenting and child aggression.

The purpose of the present study was to examine the hypothesized mediating role of social information processing on the relation between harsh parenting and childhood aggression. More specifically, this investigator sought to gain a better understanding of the association between parenting and children's interpretations and mental representation of cues (intent attributions), their ability to generate solutions (response generation), and their solution selection process (response decision) and how these processes, in turn, relate to children's propensity to behave aggressively.

#### *Research Questions and Hypotheses*

1. Does parental harshness predict child aggression?

H<sub>1</sub>: Higher levels of parental harshness will predict higher levels of aggression in children.

2. Do children's social information processing operations (intent attributions, response generation, response decision) predict levels of aggressive behavior?

H<sub>1</sub>: Higher levels of children's hostile intent attributions will predict higher levels of child aggression.

H<sub>2</sub>: Fewer types of solutions generated by children will predict higher levels of child aggression.

H<sub>3</sub>: A higher number of aggressive response decision patterns demonstrated by children will predict higher levels of child aggression.

3. Does parental harshness predict social information processing operations?

H<sub>1</sub>: Higher levels of parental harshness will predict higher levels of children's hostile intent attributions.

H<sub>2</sub>: Higher levels of parental harshness will predict fewer types of solutions generated by children.

H<sub>3</sub>: Higher levels of parental harshness will predict a higher number of aggressive response decision patterns demonstrated by children.

4. Do social information processing operations mediate the relation between parental harshness and child aggression?

H<sub>1</sub>: The relationship between parental harshness and aggressive behavior will be mediated by intent attributions, response generation, and response decision.

### Method

This study utilized existing data from a study conducted to advance understanding of the impact of maladaptive parenting on children's social adjustment. The specifics of relevant methodological procedures used during the current study are described.

### *Participants*

The participants for the current study included 162 children (50% girls) and their parents, which were predominantly mothers (88%). The children ranged in age from 5 years to 10 years (mean 7.2 years; SD = 1.5 years). The mean parent age was 34 years. Eighty-two of the children had a substantiated history of physical abuse. The abuse group included only identified offending parents and child victims of physical abuse, although a number of subjects also had substantiated reports of neglect. No cases involving child sexual abuse or parental substance abuse were included. Seventy-three percent of the children were African American, 25% were Caucasian, and the remaining were Hispanic or mixed race. Sixty-one

percent of the children lived in single-parent households and 39% lived with two parental figures. Thirty-eight percent of the parents were married and the majority of the parents were employed (64%). The families came from a variety of socio-economic backgrounds, with 34% at the highest levels of the Hollingshead (1975) four factor index of social status and 43% at the lowest two levels.

### *Procedure*

Participants were enrolled in a larger study conducted in a family studies lab at a major university in the southeastern United States. Participants were recruited in several ways. Abused parents were recruited following substantiation of physical abuse by the local department of human services. Parents were given a written and verbal description of the purpose and procedures of the research after the abuse investigation had been completed and the case was referred for treatment services. Comparison parents were recruited by flyers placed in laundry rooms, grocery stores, local day care centers, and Head Start programs in the neighborhoods where the abuse families lived.

If interested in participating, parents phoned a doctoral-level research associate whose number was provided on the flyer. During a phone interview, parents were administered a psychosocial interview, which was used to assess whether parents met inclusion criteria or exclusion criteria. Families were included in the study if the children were within the target age range, lived with the parent, and spoke English. Families were excluded if there was a history of sexual abuse or if there were severe substance abuse issues. For comparison families, if there was a history of child abuse or domestic violence, the family was not invited to participate.

If parents met research criteria, they were invited to the family research clinic to participate in the study. Parents arrived at the clinic and were given a more detailed description of the project and an opportunity to ask questions. During this meeting, parents were assured of confidentiality and asked to sign a consent form giving permission for their family to participate in the project. Parents also gave permission for their children's teachers to complete the Social Behavior Scale (SBS) and for the school-based observation of their children's social adjustment to be conducted approximately six months following the clinic assessment. To ensure confidentiality of data, each family was assigned an identification number and assessment data were stored in locked filing cabinets in the clinic.

Trained undergraduate assistants conducted the data collection in the clinic and at each child's school. In the clinic assessment, parents and children completed a series of measures assessing intellectual functioning and social cognitive and emotional factors. Parents completed self-report measures about parenting and children, knowledge of problem solving, and general happiness. The assessment also included an evaluation of the child's problem solving skills, social skills, and attributions. Reading skills were not required to complete the assessment. The parent-child dyads were observed during a staged situation. These interactions were recorded and later coded by trained research assistants. Assessment in the clinic took about three and one-half hours and was supervised by a graduate student. Each parent received \$75 for his or her participation. Families were also given a booklet of resources and the opportunity to return for a review of their family assessment.

Approximately six months later, each child was observed during unstructured play on the school playground. Also at this time the child's teacher was asked to complete a rating scale, which depicted several aspects of the child's behavior, including behavior in the

classroom and interaction with peers. Teachers had to have known the participant at least six weeks, and in the event that the child had more than one teacher, the scale was given to the teacher who best knew the participant.

Numerous instruments were used to access each family; however, not all instruments were used for the purpose of this current study. Details of the instruments used for the present study are discussed.

### *Instrumentation*

#### *Measures of Parental Harshness*

*Conflict Tactics Scale (CTS).* The *Conflict Tactics Scale* (Appendix A), developed by Straus (1990) provides an assessment of methods used by parents to resolve conflicts with children. For the purpose of the current study, a modified version of the scale (Kaufman, Jones, Steiglit, Vitulano & Mannarino, 1994) was used. The modified version of the scale was shortened and the items were read to the participants in an interview format over the phone. Parents were asked to indicate on a three-point scale how often they used each tactic in the preceding 3 months (*Never* = 1, *Once* =2, *More than once* =3). Items were arranged so that the less threatening items (e.g., reasoned with your child, shouted at your child) were presented first, followed by increasingly aggressive methods (e.g., hit your child, shaken or pushed your child).

Straus and Hamby (1997) presented information based on over 100 papers and articles that used the CTS to measure child maltreatment. The review indicated that the CTS overall identified more cases of maltreatment than were known to child protective service agencies. They also found family members, including parents and their children, agreed about ratings at substantial levels, which yields support for concurrent validity. Haskett,

Smith Scott, and Sabourin Ward (2004) found support for the validity of the modified CTS while investigating subgroups of physically abusive parents using cluster analysis. The investigators conducted cluster analyses based on 11 items of the CTS that are indicative of harsh parenting (ranging from 11 to 33), as well as observed parenting behavior. Results of the cluster analyses produced clinically relevant subgroups of abusive parenting. Meaningful distinctions were made between subgroups on measures of parent emotional health, parenting stress, and beliefs regarding children's behavior. Furthermore, scores on measures of parental emotional health and CTS parent-to-child scores were significantly related in the expected direction.

A total raw score was generated for purposes of the current study by summing frequency ratings for the 11 items indicative of the harsh discipline construct, thus scores ranged from 11 to 33, as in the Haskett, Smith Scott, and Sabourin Ward (2004) study. This score was then converted to a z-score so that it could be combined with a z-score for the PCI (described below). The combined score was used to represent Harsh Parenting.

*Observation of Parent-Child Interactions (PCI).* Each parent-child dyad participated in a 30-minute interaction session. The interaction session was divided into three 10-minute segments. First, the dyads participated in the "free play" segment, in which dyads were asked to play together in a room with a standard set of age-appropriate play materials (e.g., small blocks, markers and paper). The second segment was a structured "instructions" task in which parents were told to ask their children to clean up the play materials, draw a picture of a person, and then sit quietly while the parent read a magazine. In the final segment, "teaching/frustration," dyads were involved in a timed teaching task in which parents were instructed to help their children quickly complete two age-appropriate puzzles. Parents were

told to help their children without touching the puzzle pieces. A visible and audible timer was set for 10 minutes to increase time intensity.

Uninformed coders viewed the videotaped interactions, and coded parents on several dimensions using the Qualitative Ratings of Parent-Child Interactions (Appendix B) (Cox, 1997; Paley, Cox, & Kanoy, 2001). The dimensions relevant to the current study include Negative Regard for the Child and Intrusiveness. These categories were chosen to reflect salient aspects of parenting practices described for harsh parents. Negative Regard refers to the intensity and frequency of parental negative effect toward the child; physical tension, harsh voice tones, and punitive comments are characteristic of this domain. The Intrusiveness category reflects the parent's ability to recognize and understand the child's need for autonomy and independence; parents who score high on this dimension interfere with their child's needs, desires, interests, or actions and dominate or lead the interaction.

Scoring of the scales consisted of ratings from one through seven with "one" indicating that the category was not at all indicative of the observed parenting and "seven" indicating that the category under consideration was highly indicative of the observed parenting scored for each 10 minute segment. Undergraduate and graduate students were trained to conduct reliable coding. Inter-rater reliability was examined for 25% of the dyads, and kappa coefficients for exact agreement on codes for the six categories ranged from .76 to .92.

To reduce raw data to a single indicator of observed harsh parenting for the current study, three steps were involved. First, the raw scores for Negative Regard and Intrusiveness across the three segments were each converted to a mean. A review of bivariate correlations of scores across the three segments showed significant inter-segment reliability, which

justifies averaging scores across situations. Second, the two separate means were combined into an overall mean for each of the two parenting dimensions. Finally, the overall mean was converted to a z-score. A mean of the z-scores was generated using the PCI z-score and CTS z-score to represent the construct of harsh parenting.

#### *Measures of Social Information Processing Operations*

*Child Problem Solving Measure.* The CPSM (Appendix C) was developed by members of the research team at Fast Track (Conduct Problems Prevention Research Group, 1991b) and used to measure the child's ability to generate solutions to hypothetical social problems. The CPSM includes eight vignettes, presented verbally and accompanied by pictures that depict a peer conflict. For example, one item stated, "Pretend that this is you and this is Billy. You and Billy are both on the playground and Billy starts calling you names and making fun of you. What could you say or do to get Billy to stop teasing you?" Although males and females were presented with the same vignettes, characters in the vignettes were modified to be the same gender as the participant. After each vignette the children were asked to state all the things they could do or say to solve the problem. If a participant repeated a solution used previously or could not generate any solutions, a maximum of three prompts were provided (e.g., "What else could you do or say?"). New vignettes were introduced after the participant had generated six different solutions or after they were unable to state any new alternatives after being given three consecutive prompts. Each solution was coded as one of 13 types. There were five types of negative solutions (e.g., grab, attack, threaten) and eight types of nonnegative solutions (e.g., ask, do nothing, trade).

Inter-rater reliability of coding was assessed by the test developers using a large nonclinical sample of 355 children from four communities in the United States utilizing six

response categories (Conduct Problems Prevention Research Group, 1994). Inter-item reliability coefficients for the six categories ranged from .71 (Aggressive responses) to .40 (Irrelevant responses). Aggressive scales were positively correlated to problem behavior scores based on teacher report of child adjustment, which lends support for construct validity. Inter-rater reliability was also assessed on the current sample for approximately 30% of the participants. The Pearson coefficient estimating reliability for number of solutions generated was .92.

For the current sample, inter-rater reliability was estimated using a second coder for approximately 30% of the participants, and Pearson correlations were calculated for the three summary scores. Reliability coefficients were above .90 for all scores. A summary of psychometric properties of the CPSM is provided by Corrigan (2003), who reported that coefficient alphas across categories were modest, scores were significantly different for normative and control samples, and scores on the Aggressive scale were significantly correlated with teacher reports of child adjustment.

The CPSM was used in the current study to measure the breadth of the child's ability to generate solutions (response generation) in a hypothetical peer conflict by calculating the total number of types of solutions generated (potential range 0-13).

*Home Interview with Child (HIWC).* The HIWC (Appendix D) was developed during research by the Fast Track Project (Conduct Problems Prevention Research Group, 1991a) to assess children's attributional style for peer intent. The measure consists of eight vignettes describing peer social problem situations. Four problems relate to exclusion by peers and four relate to a physical conflict. Each vignette was designed to depict a peer interaction in which the participant was asked to pretend that he/she was the protagonist in the described interaction. For example, one item stated, "Pretend you see some kids playing on the playground. You would

really like to play with them, so you go over and ask one of them if you can play. They say no.” The participant was asked to (a) state why the antagonist child in the vignette did what he or she did and (b) report what they would do about the child’s behavior.

Each of the child's responses as to why the child in the vignette did what they did (intent attributions) were coded by trained undergraduate research staff as either Hostile (e.g., "he was being mean"), Nonhostile (e.g., "it was an accident"), or Don't know (when participant was unable to generate a reason for the child's behavior). The total number of responses indicating a hostile attribution was used in the current study to represent intent attributions. For response decision, each child’s response to what he or she would do about the other child was coded as either (a) Passive, (b) Seek Information, (c) Solution Focused, (d) Assertive, or (e) Aggressive. Total responses categorized as Aggressive were used for the purpose of the present study. Inter-rater agreement of coding was estimated using a second coder for approximately 30% of participants; the kappa coefficient was .92, consistent with other studies (e.g., Zelli, et al., 1999). In past research, scores on the HIWC differentiated normative samples from samples at high risk for aggression, and Cronbach’s alpha coefficients for normative and high risk groups were above .70 (Rains, 2002). Data were available for 153 children in our sample; the mean number of hostile attributions was 4.7 ( $SD = 2.0$ ).

The HIWC was used in the present study to evaluate the child’s tendency to attribute hostile attributions in ambiguous situations (i.e., attribution style), based on the total number of problems for which a child gives a response characteristic of a hostile attribution bias (possible range 0-8). Additionally, the HIWC was used to measure the child’s tendency to choose aggressive strategies in peer conflicts (i.e., response decision), by deriving a total of the number

of times (possible range 0-8) that a child chose an aggressive response when asked what they would do about the antagonist child's behavior.

### *Measures of Child Aggression*

*Social Behavior Scale (SBS).* The SBS (Appendix E), a 39-item teacher-report questionnaire, was used as one measure of children's level of aggression. The SBS was administered six months after the initial data collection in the clinic environment. Teachers were asked to rate the degree to which each statement described the target child, using a 5-point Likert scale ranging from 1- (*Never true*) to 5- (*Almost always true*). Seven subscales can be derived from the teacher ratings, including Prosocial, Relational Aggression, Overt Aggression, Asocial, Excluded, Depressed, and Victimized. For the purpose of this study, only the Overt Aggression subscale was used to measure the child's level of aggression. This subscale is made up of seven items, such as "kicks or hits others." Items for the Overt Aggression subscale were drawn from two assessment tools, the Children's Social Behavior Scale-Teacher Form (CSBS-T) (Crick, 1996) and the Preschool Social Behavior Scale Teacher Form (PSBS-T) (Crick, Casas, & Mosher, 1997). Correlations between teacher ratings and ratings by peers on the PSBS-T were moderate, ranging between .42 and .31.

Factor analysis of the SBS, based on 180 participants in the larger sample from which the sample for the current study was drawn, supported the 7-factor structure, and internal consistency of subscales was high (range = .78 to .93). Internal consistency for the Overt Aggression scale of the SBS was .91.

The score on the Overt Aggression subscale of the SBS was converted to a z-score so that it could be combined with the playground observation score (described below) to provide a single indicator of child aggression in this study.

*Playground Observation.* To measure child social behavior in a naturalistic setting, each child was observed on the school playground during a regularly scheduled recess period. Children were observed for 30 minutes of unstructured play and behavior was coded by trained observers. During the continuous live observation, a 15 second interval recording system (Appendix F) was employed in which the child was observed for 10 seconds and then the occurrence of any target behaviors during that interval was recorded during the next five seconds. In each interval a maximum of one notation was made for each target behavior (i.e., present or absent).

Trained undergraduate observers targeted the occurrence or absence of four behaviors for recording. The first of these was Engagement, a category defined as physical and verbal behavior directed to another peer or group of peers that had the purpose of engaging the peer in interaction or continuing the interaction initiated by a peer. Parameters to score this category included proximity of the child to a peer or group of peers and active behaviors such as talking, eye contact and/or touching. Examples of these behaviors included involvement in group games, asking for or delivering help, general comments and laughing or smiling with peers. The second coded category was Negative Behavior. This category included negative verbal expressions or physical gestures to peers not involving physical contact. Examples of Negative Behavior included teasing, name calling, profanity, tale bearing, verbal or physical threats and commands. Rough Play was the third category selected for coding. These behaviors included physical contact with peers of a negative nature but without the strength or intensity to be classified as aggressive. Behaviors included holding onto other children's clothes, elbowing or shouldering and roughhousing as a part of games such as touch football. Aggression was the final category selected for coding. Aggression

was defined as negative contact with a peer or object that included the potential for harm or damage. Behaviors encompassed by this category included hitting, scratching and throwing objects at children, taking another child's toy, and damage to property. A score was generated for each of the four behaviors based on the percent of intervals in which that behavior was observed. Percent of interval was used instead of total number of intervals because the number of intervals varied somewhat across participants (i.e., not all children were observed for the full 30 minutes). Inter-rater reliability of coding was determined for 25% of the observations using a second observer. Intraclass correlations (ICC 2,1) using an absolute agreement definition were .80 for Rough Play, .86 for Negative Behavior, .88 for Aggression, and .95 for Engagement.

For the current study, a ratio of negative social behavior (Negative Behavior, Rough Play, and Aggression) to total social behavior (Negative Behavior, Rough Play, Aggression, and Engagement) was used as an indicator of aggression. A ratio was chosen so that the indicator would reflect the amount of time children were engaged in aggressive behavior relative to their total social behavior. This was expected to provide a more contextual view of the child's aggressive tendencies. The ratio score was then converted to a z-score. The mean of the two z-scores from the SBS and the Playground Observation represented the construct of child aggression.

## Results

### *Descriptive Analyses*

Descriptive analyses were conducted for each variable to assess score distributions and variability (See Table 1). Note that the sample size varies somewhat across measures due to missing data. The Harsh Parenting construct was represented by an aggregate of two

measures, including the total CTS score ( $N=156$ ,  $M = 14.43$ ,  $SD = 2.48$ ) and the mean of PCI scores ( $N=156$ ,  $M = 2.17$ ,  $SD = .91$ ). Child Aggression was also an aggregate of two measures, including a ratio negative behavior to total behavior during a systematic playground observation ( $N = 147$ ,  $M = .10$ ,  $SD = .09$ ) and teacher ratings of overt aggression on the SBS ( $N = 145$ ,  $M = 1.74$ ,  $SD = .77$ ). Z-scores were generated for each measure. The aggregate constructs Harsh Parenting and Child Aggression were derived by combining z-scores from multiple measures, thus the descriptive data for both constructs are that of standard scores ( $M = 0$ ,  $SD = 1$ ). Descriptive statistics for each of the proposed mediating social information processing operations include Intent Attributions ( $N = 149$ ,  $M = 4.69$ ,  $SD = 1.99$ ), Response Generation ( $N = 153$ ,  $M = 7.44$ ,  $SD = 2.01$ ), and Response Decision ( $N = 150$ ,  $M = .84$ ,  $SD = 1.56$ ). The variables were all normally distributed, with the exception of Child Aggression and Response Decision (See Figures 1 – 6, Appendix G).

The distribution of scores for Child Aggression was positively skewed and revealed a floor effect, with the majority of the children demonstrating very low levels of aggression. A log transformation was conducted in an attempt to make the Child Aggression variable more normally distributed. Because the Child Aggression variable was derived using z-scores and had a mean of 0, the arbitrary number 5 was added to all of the scores to allow for a log transformation. The transformed Child Aggression variable was used for analyses due to the reduction in skewness (See Table 1). One concern with this transformed distribution, however, was that the intercept would no longer be interpretable if statistically significant predictions were revealed during analyses. The distribution for the Response Decision variable also revealed a floor effect, although more extreme.

Table 1.

*Descriptive Statistics for Variables in Model (N = 162)*

	N	Mean	Standard deviation	Skewness	
				Statistic	Std. Error
Harsh Parenting	162	-.08	.82	.70	.19
CTS		14.43	2.48		
PCI		2.17	.91		
Child Aggression	142	.00	.82	1.10	.20
Playground Observation		.10	.09		
SBS		1.74	.77		
Child Aggression (Transformed)	142	.70 <sup>a</sup>	.08 <sup>a</sup>	.62	.20
Intent Attributions	149	4.69	1.99	-.30	.20
Response Generation	153	7.44	2.01	-.33	.20
Response Decision	150	.84	1.56	2.00	.20
Response Decision (Dichotomized)	150	.30	.46	.88	.20
SIP Aggregate	161	-.02	.56	.30	.21

*Note.* Harsh Parenting and Child Aggression are aggregate variables represented in z-scores (M = 0, SD = 1).

<sup>a</sup>A log transformation was conducted in an attempt to make the Child Aggression variable more normally distributed. The Child Aggression variable was derived using z-scores and had a mean of 0, thus the arbitrary number 5 was added to all of the scores to allow for a log transformation.

The majority of the children did not give an aggressive response thereby yielding a unimodal distribution, a concern that was addressed with post-hoc analyses later discussed.

### *Test of Hypotheses*

Tests of hypotheses followed procedures recommended by Baron and Kenny (1986), which involve a series of regression equations. The first step in testing for mediation is to establish that a relationship exists between variables. For this study, the independent variable (harsh parenting) must predict the dependent variable (child aggression) as well as each of the mediators in the model (intent attributions, response generation, and response decision) to test for mediation using regression. It was first hypothesized that higher levels of Harsh Parenting would predict higher levels of Child Aggression. Results of a linear regression revealed that Harsh Parenting did not significantly predict Child Aggression  $\beta (142) = .13, p = .07$ . Thus, the first hypothesis was not supported.

Second, it was hypothesized that higher levels of hostile intent attributions, fewer types of solutions generated, and a higher number of aggressive response decisions would predict high levels of child aggression. Results of linear regression analyses revealed that Intent Attributions did not significantly predict Child Aggression  $\beta (132) = .06, p = .24$ , Response Generation did not significantly predict Child Aggression  $\beta (133) = .03, p = .37$ , and Response Decision did not significantly predict Childhood Aggression  $\beta (133) = -.12, p = .08$ . Thus, the hypothesized prediction of Child Aggression by Intent Attribution, Response Generation, and Response Decision was not supported.

Third, it was hypothesized that higher levels of parental harshness would predict higher levels of children's hostile intent attributions, fewer types of solutions generated by children and a higher number of aggressive response decision patterns demonstrated by

children. Results revealed that Harsh Parenting did not significantly predict Response Generation  $\beta (153) = .13, p = .05$ , nor Response Decision  $\beta (150) = .05, p = .26$ . Thus, the hypotheses that harsh parenting would predict fewer types of solutions generated by children and a higher number of aggressive response decisions demonstrated by children were not supported. Harsh Parenting did, however, significantly predict Intent Attributions,  $\beta (149) = .17, p = .02$ . Thus, harsh parenting behavior predicted children's tendency to attribute hostile intentions to ambiguous social behavior in a positive direction, and the hypothesized prediction of intent attributions by harsh parenting was supported.

Finally, it was hypothesized that the relation between parental harshness and children's aggressive behavior would be mediated by intent attributions, response generation, and response decision. Mediation could not be assessed for this study because Harsh Parenting did not significantly predict Child Aggression nor did Harsh Parenting predict two of the proposed mediators (Response Generation and Response Decision). In addition, none of the proposed social information processing mediators (Intent Attributions, Response Generation, Response Decision) predicted Child Aggression.

## Discussion

### *Overview*

Children with elevated levels of aggression are at risk for adjustment concerns as adolescents and throughout adulthood. Social adjustment difficulties in childhood can contribute to a series of transactional pathways that are associated with negative outcomes throughout life, including poor academic experiences, delinquency, substance abuse, disrupted employment, psychopathology and criminal behavior. It is therefore important to identify children who are at risk for and who already demonstrate signs of social adjustment

problems, such as child aggression. Identifying these children early may lead to earlier interventions that could improve the life trajectories for these children and help them to lead positive, productive lives (Hill, Coie, Lochman, & Greenberg, 2004; Lochman, Coie, Underwood, & Terry, 1993).

One risk factor of particular interest to the present study is harsh parenting, which has been known to be related to impaired social information processing operations and child aggression. The purpose of this study was to examine the hypothesized mediating role of three social information processing operations (intent attributions, response generation, and response decision) in the relation between harsh parenting and childhood aggression. Specifically, this investigator sought to gain a better understanding of how the three social information processing operations independently mediated the link between harsh parenting and child aggression in three separate models.

The current study was a follow-up to a previous study conducted by Haskett and Willoughby (in press), who examined whether parenting was a direct predictor of child social adjustment as well as an indirect predictor through mediating social information processing operations. The investigators explored these paths using latent variables in structural equation modeling. In their study, higher quality parenting significantly predicted more adaptive child social information processing operations and social adjustment. However, social information processing, measured as one aggregate construct, did not aid in the prediction of child social adjustment after controlling for the effects of quality of parenting.

Following these results, one aim for the current study was to answer more specific questions about harsh parenting and child aggression using the same data set. A goal was to add to existing literature by determining whether the three social information processing

operations (intent attributions, response generation, response decision) investigated separately as opposed to as one aggregate construct, would mediate the relation between harsh parenting and child aggression. To answer this question, the investigator tested three separate mediation models using regression, as opposed to structural equation modeling. Following considerations proposed by Mize, Pettit, and Meece (2000), the investigator for the current study questioned whether separating the three social information processing operations used in the Haskett and Willoughby (in press) study would reveal any specific mediating relations, given that these operations are thought to represent distinct processes (Crick & Dodge, 1994).

Mize, Pettit, and Meece (2000) also raised a concern regarding interpretation of some mediational studies that were based on the same type of measure (i.e., self-report) and the same respondent, which can contribute to shared method variance in measurement. The problem with studies that may have shared method variance is that associations among variables may be inflated due to the methodology alone. One strength of the current study was the use of multiple measures and methods for several constructs. Specifically, the measure of Harsh Parenting included an observation of parent-child interactions and a self-report of parenting behavior. The measure of Child Aggression included a teacher-report of child behavior and a playground observation of children's interaction with peers. Social information processing operations were assessed using hypothetical vignettes, the methodology most widely used to study these operations. An additional strength was that the investigator for the current study attempted to move the field forward by narrowing constructs from a previous study by disaggregating the variables to aid in understanding the conditions in which associations among parenting, social information processing operations,

and child adjustment are found. An interpretation of the results and implications of the current study are discussed in the following sections, as are possible directions for future research.

### *Harsh Parenting and Child Aggression*

Previous studies have demonstrated a relation between harsh parenting behavior and child aggression (Manly et al., 2001; Salzinger et al., 2001; Stormshak et al., 2000; Weiss et al., 1992). In the present study, however, harsh parenting behavior did not predict child aggression. Interestingly, Haskett and Willoughby (in press) did find a link between parenting and child adjustment with the same database using structural equation modeling; warm and responsive parenting combined with limited use of harsh discipline were predictive of more positive social adjustment. For the current study, both Harsh Parenting and Child Aggression were aggregate variables used to represent a single construct. Harsh Parenting was comprised of scores from an observation measure and a self-report measure, while Child Aggression was made up of scores from a teacher-report measure and a playground observation.

Results of Pearson correlations revealed that z-scores for the CTS (self-report) and the PCI (observed parenting), which were combined to make up the Harsh Parenting construct, were significantly correlated  $r(150) = .36, p < .001$  with one another. In addition, the z-scores of the Overt Aggression subscale of the SBS and the ratio of negative behavior to total behavior observed during the Playground Observation, which were combined to make up the Child Aggression construct, were significantly correlated  $r(142) = .33, p < .001$ . Thus, results of the correlational analyses suggested that the individual indicators were

significantly associated and justified combining these variables derived from a multi-method approach to represent the aggregate constructs of Harsh Parenting and Child Aggression.

There are several possible considerations that may elucidate the failure to find that parental harshness predicted children's level of aggression in the current study. The first consideration is the conceptualization of parenting behavior and child social adjustment. Although the current study was similar to the Haskett and Willoughby (in press) study in using the CTS self-report measure and the PCI observed parenting as measures of parenting, the investigator deviated from the previous study by not including the "Positive Regard" subscale to represent parental warmth in the conceptualization of parenting. In addition, the investigator's conceptualization of child social adjustment only focused on child aggression. The Haskett and Willoughby study used the same measures (SBS teacher-report and Observed playground behavior), but it differed from the current study by including "Relational Aggression," and "Excluded by Peers" to allow for a more global assessment of children's social adjustment.

The investigator for the current study excluded parental warmth from the parenting construct and focused on child aggression with regard to social adjustment in an attempt to discern whether or not there was a relation between more specific constructs of harsh parenting and child aggression. Thus, the nonsignificant relation yielded when excluding parental warmth from the parenting construct appears to be an important implication for the current study. Excluding parental warmth may have diminished the association between parenting and adjustment by ignoring some of the important complexity of parenting. Previous studies have suggested that harsh parenting in the context of low parental warmth increases the risk for severe adjustment problems, whereas parental warmth in the presence

of harshness may buffer negative adjustment outcomes (Deater-Deckard & Dodge, 1997; Dodge & Pettit, 2003; Kim & Cicchetti, 2004; McFayden-Ketchum, Bates, Dodge & Pettit, 1996; Pettit, Bates, & Dodge, 1993).

Even in the case of physical abuse, at the far end of the continuum of harsh discipline, the presence of parental warmth is relevant to understanding outcomes for children. To illustrate, Haskett, Smith Scott, and Sabourin Ward (2004) identified two distinct clusters of abusive parents; one cluster included abusive parents who were relatively positive in regard to their children and showed sensitivity to their children. Those parents were indistinguishable from comparison parents on every parenting dimension. Their children were rated by teachers as more prosocial than children of abusive parents lacking in warmth. In sum, the absence or presence of parental warmth is an important dimension of parenting, even for parents known to use excessively harsh discipline. Excluding parental warmth from the measure of parenting in the current study may have diminished the richness of the parenting variable and hindered the investigation of the association between parenting and child aggression.

Just as a measure of parenting that lacks consideration of parental warmth results in a loss of an important dimension of the parenting construct, considering children's overt aggressive behaviors without taking into account factors such as exclusion from peers and relational aggression as in the Haskett and Willoughby (in press) study, may result in a loss of important information about children's social adjustment. Though the current investigator was interested in children's aggressive behavior specifically, focusing on just aggression without considering the total pattern of interaction with peers may not provide a comprehensive view of their social adjustment. For instance, it is possible that children who

scored high on aggression also scored high on prosocial behaviors. Likewise, children with low scores for child aggression may not have been engaged with peers very much at all, which could suggest possible withdrawal or rejection, which are important aspects of social maladjustment. Thus, child aggression without other important social adjustment indicators may hinder revealing a possible association between parenting and social adjustment.

A second consideration in interpreting the lack of prediction of child aggression by parental harshness is a growing body of research that indicates that the relation between harsh parenting and child aggression may be moderated by numerous internal and external protective factors that children may possess. These protective factors can include attributes within the child such as intelligence, high self-esteem, positive attributions, and optimism (Cicchetti & Lynch., 1993; Masten et al., 1999; Moran & Eckenrode, 1992; Seligman, 1992; Werner, 1989). Family characteristics that have been identified as protective factors include higher levels of parental education, high levels of family cohesion and warmth, and the absence of a family history of psychopathology (Egeland, Carlson & Sroufe, 1993; Masten, Hubbard, Gest, Tellegen, Garmezy et al., 1999; Mrazek & Mrazek, 1987; Perkins & Jones, 2004). Though the current sample was diverse and included children who varied with regard to protective factors, there were no analyses conducted to determine whether or not there were any interactions that could affect the relation between harsh parenting and child aggression for this study.

Although mediation can still be found when moderators are present, it is possible that moderators can diminish the relation between harsh parenting and child aggression. For instance, Kim and Cicchetti (2004) found that children with secure mother-child relationship quality showed fewer internalizing and externalizing symptoms regardless of maltreatment

status, revealing the potential buffering of parental warmth. Therefore, if children in the current study had parents with high levels of parental warmth, the relation between harsh parenting and child aggression may have been attenuated.

Finally, the relation between harsh parenting and child aggression may be more apparent within groups of children who have been identified as aggressive. Domitrovich and Bierman (2001) investigated multiple pathways of parenting practices on children's social adjustment using regression analyses. Similar to the current study, the investigators found that maternal reports of hostile controlling parenting were not significantly associated with children's aggressive behavior. To further examine this result, the investigators specifically examined children who had elevated levels of peer-rated rejection and aggression within the sample and found that their mothers did report significantly higher levels of punitive discipline and lower levels of warmth and support than the mothers of the nonproblematic children in the sample. Though they were unable to find significant results initially, investigating children who demonstrated higher levels of aggression revealed significantly elevated harsh parenting. The current study did not include a group of children who previously had been identified as aggressive. Furthermore, this sample obtained low mean scores on observed aggression on the playground and on teacher-report of aggression. Thus, the sample lacked variability in aggression, which may have diminished the power to detect an association with parental harshness.

In sum, harsh parenting and child aggression were not related in the current study. However, using the same data set, a relation was found between parenting and child social adjustment when assessed more globally in a previous study (Haskett & Willoughby, in press). Several factors may assist in interpreting the results of this analysis, including the

specific conceptualization of harsh parenting and child aggression in the current investigation, the possibility of protective factors that may have moderated the relation between the variables, and the low level of aggression among the children in the current sample. The lack of relation between the independent and dependent variables in this model rendered an examination of social information processing operations as mediators irrelevant.

### *Social Information Processing Operations and Child Aggression*

Similar to the unexpected failure to find that harsh parenting did not predict child aggression for the current study, further analyses revealed that none of the social information processing operations investigated (intent attributions, response generation, and response decision) were predictors of child aggression. Although numerous studies have demonstrated a relation between impaired social information processing operations and child aggression (Crick & Werner, 1998; Dodge, 1980; Dodge & Price, 1994; Orobio de Castro et al., 2003; Quiggle et al., 1992), these operations did not predict child aggression when investigated as individual predictors using linear regression. Due to the highly skewed distribution of the response decision variable, a post-hoc analysis was conducted with the response decision variable recoded as a dichotomized variable. The responses were recoded into a binary variable indicating whether an aggressive response was given or not, as opposed to a continuous variable to represent the number of aggressive responses. The results of the post-hoc analysis revealed that response decision when dichotomized was not correlated with child aggression  $r(139) = -.05, p = .28$ . Considerations in interpreting these results will be discussed further in this section.

As previously discussed, numerous studies have suggested that children who are more likely to attribute hostile intent during social conflicts in which the peer's intent is unknown

are also more likely to engage in aggressive behavior (Crick, Grotpeter, & Bigbee, 2002; Dodge, 1980; Katsurada & Sugawara, 1998; Orobio de Castro et al., 2002; Price & Glad, 2003). Likewise, the inability to generate alternative ways to respond to social situations and a tendency to choose aggressive responses have been associated with child aggression (Crick & Werner, 1998; Fontaine, Burks, & Dodge, 2002; Mayeux & Cillessen, 2003). Conversely, if a child is not inept in social skills and is able to generate more plausible ways to respond to peer conflict, they would be more likely to decide to respond prosocially.

One issue, previously mentioned, that may have had implications for the nonsignificant relation found between the social information processing operations and child aggression was the sample characteristics. The current sample was not a clinical sample of aggressive children. The sample did include children who had experienced physical abuse, however, which previous studies suggested would be likely to show elevated levels of aggression (Bank & Burraston, 2001; Manly et al., 2001; Stormshak et al., 2000; Weiss et al., 1992). In spite of the inclusion of children with histories of abuse, levels of aggression for this sample were not very high overall. The mean score for a ratio of negative behavior to total behavior observed on the playground observation was only .10, while the mean score of teacher-rated overt aggression was 1.74, with a score of 5 being the highest score possible. The majority of the studies in which investigators found that various social information processing operations predicted child aggression involved samples of children who demonstrated clinically significant levels of aggression. For instance, the majority of the articles reviewed for the current study that found a significant relation between parenting behavior and children's social adjustment compared a sample of children with severe problems of aggression to nonaggressive children (Dodge, 1980; Katsurada & Sugawara,

1998; Crick, Grotpeter, & Bigbee, 2002; Crick & Werner, 1998; Rudolph & Heller, 1997). Furthermore, a meta-analysis of research on the link between aggression and hostile attribution bias conducted by Orobio de Castro et al. (2002) found larger effect sizes among studies involving children with more severe aggressive behavior. Thus, the lack of prediction of child aggression by the social information processing operations in the current study may be due, in part, to the lack of representation of highly aggressive children in the current sample.

Studies also have found that various social information processing operations may predict child aggression better than others at various stages of development. For instance, Orobio de Castro et al. (2002) found larger effect sizes for studies involving children ages 8-12. The current participants ranged in age from 5 to 10 years, with the majority of the children falling between 6 and 8 years, the age range that Orobio de Castro et al. suggested yields the weakest link between intent attributions and behavioral outcomes.

Additionally, the methodology used to measure social information processing was also related to effect sizes for the Orobio de Castro et al. (2002) meta analysis, with larger effect sizes associated with methods involving actual staged social interactions, followed by audio presentation, and lastly video and picture presentations, which yielded smaller effect sizes. The current study utilized hypothetical vignettes presented in pictures, which have yielded significant results in previous studies, but may not be as powerful as staged interactions or audio presentation.

Finally, although there has been support for the relation between social information processing and child aggression in many previous studies, results across studies have been inconsistent (Mize, Pettit, & Meece, 2000). There have been studies that have not found

support for the relation between various social information processing operations and child aggression. Unfortunately, these studies are harder to obtain due to the tendency for scientific journals to publish studies with findings of significance. For example, the investigators of a nonpublished study presented at the 2005 NASP Annual Convention did not find a significant relation between peer nominated aggression and intent attributions or response selection/decision (Groff & Teglassi, 2005). Though embedded in a study with statistically significant results, Quiggle et al. (1992) did not find a statistically significant association between response generation and children's level of aggression. Meta-analytic studies are very helpful in ascertaining the robustness of findings for various models. However, currently there are no meta-analytic studies on the association between response generation and child aggression/social adjustment or between response generation and child aggression/social adjustment. Thus, it is difficult to determine the true strength of the relation between these two operations and child aggression, and under what conditions effect sizes are larger. Upon close review of the literature, it becomes clear that findings that support a relation between social information processing operations and child aggressions have not been robust across ages and types of measures.

In sum, the three social information processing operations investigated in the current study may not have predicted child aggression for several reasons. First, the current sample was not comprised of children who had been identified as possessing clinical levels of aggression and was somewhat restricted in range of aggression. Second, results tend to vary for different age groups, and age groups that tend to yield the larger effect sizes were not heavily represented in the current sample. Third, the current study used hypothetical vignettes to assess the social information processing operations, which may yield smaller

effects. Finally, results of the current study are not inconsistent with previous studies and suggest that the association between social information processing operations and child aggression is complex and likely dependent upon sample characteristics and measurement approaches.

### *Harsh Parenting and Social Information Processing Operations*

Elevated levels of harsh parenting behavior predicted children's tendencies to attribute hostile intent to peers in social conflicts where the intent of their actions is ambiguous, using hypothetical vignettes. Although the prediction was not very strong in the current study, this finding is in line with previous studies that have found a relation between harsh parenting and intent attributions (Price & Glad, 2003; Hart, Ladd, & Burleson, 1990). Children who live in hostile home environments and who are more likely to experience physical and aversive punishment may develop a more hostile representation of their social environment and thus, interpret unclear motives of others during social interactions as hostile.

Harsh parenting did not predict response generation or response decision in the current study. A post-hoc correlation analysis was conducted with the response decision variable recoded as a dichotomous variable. Results of the post-hoc analysis revealed that harsh parenting was marginally correlated with response decision when recoded  $r(150) = .137, p = .05$ . This result indicates that children who experience harsher parenting may be more likely to endorse or choose aggressive responses to social situations. There have been previous studies that have found harsh parenting to predict impairments in response generation and response decision (Hart, Ladd, & Burleson, 1990; Haskett, 1990; Trickett, 1993), such that children who experience harsh parenting tend to generate fewer solutions

and types of solutions during social conflicts and tend to choose more aggressive responses. The result that harsh parenting marginally predicted intent attributions and response decision, but did not response generation is interesting because results of the Haskett and Willoughby (in press) study revealed that parenting behavior predicted children's social information processing when measured as an aggregate construct.

There is a plausible explanation for the lack of prediction of one of the social information processing operations for the current study (response generation) in lieu of the significant prediction of the social information processing aggregate by parenting for the Haskett and Willoughby (in press) study. This explanation is that the relation between harsh parenting and intent attributions and response decision may be what is being reflected in the association between parenting and the social information processing aggregate for the Haskett and Willoughby study. It is possible that if Haskett and Willoughby had assessed the operations separately, the relation between parenting and response generation may not have been found. The results of the current study which revealed that harsh parenting predicted intent attributions and response decision, but not response generation when investigated individually, further supports the need to consider the unique associations between individual social information processing operations and other variables, as opposed to only investigating them as an aggregate construct.

A final consideration for interpreting the lack of relation between harsh parenting and response generation in the current study is that the relation between harsh parenting and the social information processing operations may differ for children based on the frequency of the harsh parenting. Price and Glad (2003) found that that frequency of abuse was significantly related to males' hostile attributions for their mothers' behavior. Thus, results

suggest the relation between harsh parenting and social information processing operations may be stronger when harsh parenting is more frequent. Though children with a substantiated history of physical abuse were included in the current study, there was no data available with regard to the frequency and duration of abuse.

### *Social Information Processing as Mediator*

The main purpose of the current study was to determine whether or not the three social information processing operations of interest would individually mediate the relation between harsh parenting and child aggression. In order for the three proposed mediational models to be possible, however, three important links first had to be supported. Namely, harsh parenting would have had to predict child aggression, each of the social information processes would have had to predict child aggression, and harsh parenting would have had to predict each of the social information processing operations. However, the results of the regression analyses did not reveal significant predictions for any of the necessary links for mediation. Thus, none of the social information processing operations could be assessed as potential mediators of the hypothesized link between harsh parenting and child aggression.

Similar to the previous study by Haskett and Willoughby (in press), the social information processing operations did not predict child aggression even when analyzed separately. In addition, harsh parenting only predicted intent attributions; therefore, mediation could not be assessed for any of the models. Mize, Pettit, and Meece (2000), in their review of studies designed to assess possible mediators of parenting behavior and peer competence, found that only a portion of the mediational studies investigating social information processing as a potential mediator met Baron and Kenny's (1986) correlational criteria for testing mediation. Upon closer investigation, Mize, Pettit and Meece also found

that the “pervasiveness of effects” at the specific social information processing level were not that strong. This weaker association may be one of the rationales for combining various social information processing operations as a global construct when assessing mediation. However, the caution in combining operations as an aggregate construct of social information processing is that the operations could be assessing unique processes that have differing associations with the independent and dependent variables. To better understand the relations among social information processing operations for the current study, post-hoc analyses were conducted. Results of Pearson correlational analyses revealed that intent attribution was significantly correlated with response decision but not with response generation. Response generation and response decision were also significantly correlated with one another (See Table 2). These results suggest that, though the various operations appear to be measuring related cognitive processes, they are sufficiently unique to warrant individual attention.

One of the main goals of the investigator in the current study was to assess whether the three social information processes investigated in the Haskett and Willoughby (in press) study would mediate the relation between harsh parenting and child aggression, separately. In their article, Mize, Pettit, and Meece (2000) suggested that investigating the social information processes as an aggregate or independently could have varying contributions to the literature with latent, composite constructs yielding stronger significance but possibly capturing different processes. Thus, it was expected that the results of the current study would reveal that the operations yielded significance independently and/or at differing levels of significance, therefore suggesting the need to

Table 2.

*Intercorrelations Among Variables (N = 162)*

	Harsh Parenting	Trans. Child Aggression	Intent Attributions	Response Generation	Response Decision	SIP Aggregate
Harsh Parenting	—	.13	.17*	.13	.05	.03
Trans. Child Aggression		—	.06	.03	-.12	-.02
Intent Attributions			—	.09	.29**	.70**
Response Generation				—	.21*	-.43**
Response Decision					—	.61**
SIP Aggregate						—

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

consider the operations separately. To ascertain whether or not social information processing as an aggregate construct would be more strongly associated with harsh parenting and child aggression, a post-hoc Pearson correlation was conducted to assess the relation between the social information processing aggregate and both harsh parenting and child aggression. The social information processing aggregate was derived by combining the z-scores for each of the operations into one mean score. The Response Generation variable was reverse coded before combining with the other social information processing variables. The results revealed that social information processing as an aggregate was not significantly correlated with harsh parenting  $r(138) = .03, p > .05$  or with child aggression  $r(122) = -.02, p > .05$  for this sample, even as an aggregate (See Table 2,). In sum, the three social information processing operations investigated in the current study (i.e., intent attributions, response generation, and response decision) were not found to be mediators of the expected relation between harsh parenting and child aggression when investigated separately and revealed nonsignificant associations with harsh parenting and child aggression as an aggregate.

#### *Directions for Future Research*

Results of the current study yielded several considerations for future studies. First, future studies should further investigate the complexities involved in the relation between parenting and child social adjustment. For example, investigators are beginning to identify potential moderators of these relations, including internal and external attributes for the children, family characteristics, and contextual variables. Second, studies are needed to determine under what conditions the association between harsh parenting and child maladjustment is more likely to occur. Many children with a history of harsh parenting and abuse do not demonstrate maladjustment. Studies that investigate transactional pathways and

developmental trajectories associated with social maladjustment may assist professionals in identifying children who are most at risk for adjustment difficulties. Third, studies are also needed to determine how robust the findings are with regard to the relation between harsh parenting and social information processing and social information processing and aggression. Meta-analyses that take into account unpublished results, as with the Orobio de Castro et al. (2000) study are helpful in revealing the strength of these associations and under what circumstances the association becomes significant. It is possible that social information processing operations, such as response generation and response decision, only mediate the relation between harsh parenting and child aggression under limited circumstances (e.g., with children who demonstrate high levels of aggression). In addition, there may be other mediators that are more robust and better explain the relation between harsh parenting and child aggression, such as emotion regulation or the presence depression, anxiety, etc. Finally, it would also be interesting for future studies to investigate these relations in the children's natural home and school settings. Though the majority of studies investigating social information processing operations use hypothetical vignettes, an investigation of these operations during real social conflicts may yield more valid results.

In sum, numerous studies have revealed that child aggression places children at risk for a number of adjustment problems and adverse outcomes. It is important to understand what places children at risk for child aggression and the cognitive processes of aggressive children. With intervention, these processes may be developed to promote positive social adjustment. Previous studies have found that harsh parenting and social information processing operations predict child aggression. Although these associations were not found for the current study, future studies are needed to more conclusively determine the strength

of these associations and to identify other risk factors and cognitive mechanisms associated with child aggression.

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## Appendix A

## Conflicts Tactics Scale-Modified

Rating Scale: 1 = Never; 2 = Once, isolated incident; 3 = More than Once

### How often in the last three months have you.....?

Reasoned with your child	1	2	3
Shouted at your child	1	2	3
Given your child a time out in a chair	1	2	3
Sent your child to their room	1	2	3
Grounded your child	1	2	3
Taken away privileges	1	2	3
Ignored your child	1	2	3
Ridiculed or made fun of your child	1	2	3
Threatened to hit your child	1	2	3
Threatened to leave child or send child away	1	2	3

### *Have you ever.....? If needed, assess severity*

Slapped child on hands, legs, or buttocks	1	2	3
Slapped child on face or neck	1	2	3
Hit or punched your child	1	2	3
Hit your child with a strap, belt, or rope	1	2	3
Hit your child with a stick, paddle, or other hard object	1	2	3
Shaken your child or pushed your child	1	2	3
Pulled your child's hair	1	2	3
Thrown your child against wall	1	2	3
Bitten your child	1	2	3
Burned your child	1	2	3

Other (specify)

## Appendix B

## QUALITATIVE RATINGS

### PARENT CHILD INTERACTION AT 24-36 MONTHS OF AGE

Martha J. Cox (1997)

## QUALITATIVE SCALES

Each set of qualitative ratings is to be based on 10-20 minutes of semi-structured observation. These ratings can be applied to a variety of challenge situations for the child and parent (i.e., tool use tasks, puzzle tasks). The scales are typically used with mothers or fathers and their children during the years 2-3. The observer should take longhand notes of the parent or child behaviors as they relate to each scale and organize the notes by coding category. It is recommended that the observer watch the tape once taking minimal notes; watch the tape a second time taking careful notes of parent and child behaviors related to the scales; score the parent variable and then watch the tape for a third time to consider those scores; and score the child variables and then watch the tape a fourth time to consider those scores.

In assigning a rating, the observer should use a two-step process (borrowing from the logic of Harter). The first step is to ask, “is this dimension characteristic (a 5 or 6 or 7 rating) or not characteristic (a 1 or 2 or 3 rating) or neither characteristic (a 4) of the person being rated?” Once this decision is made, then the rater needs to make a finer discrimination between 5, 6, or 7 and 1, 2, and 3 ratings.

Ratings for most of the scales should be based on the quality and quantity of the behavior. Thus, evaluations should be made taking into account the quality of the observed behaviors in relation to the proportion of the time they were observed.

## ACKNOWLEDGEMENTS

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## Scaling for Coding Parent-Child Interaction

### **Introduction**

These scales will be qualitative ratings of three 10-minute parent-child interactions. They are in adaptation of scales developed by Cox (1997) for observing parent-child behaviors for young children but are adaptable for use with older children. The scales are to be used to code behaviors from five categories of interaction; Sensitivity, Intrusiveness, Detachment/Engagement, Positive Regard for the child, Negative Regard for the child, and Flat Affect. The scales are scored on a seven point Likert type system.

The process of observation should be as follows. The observer should watch the designated 10-minute segment of the tape completely taking minimal notes relating to the chosen categories. These notes should include initial impressions of the interaction under scrutiny and significant behaviors observed that support these impressions. Subsequent to watching the tape, the observer should decide if the interaction was characteristic or not characteristic of the interaction and a preliminary score should be assigned (see scoring criteria on p. 2).

The tape should be watched a second time with careful note taking of the parent and parent-child behaviors relating to the categories. After the second viewing, a final specific score should be assigned for each category under consideration. The tape may be stopped at any time and rewound to review key segments or behaviors.

These guidelines need to be maintained throughout the project. A standard and repeatable procedure is one of the best ways to ensure reliability. As you become more familiar with the scale, the rating of behaviors will become more fluent. With practice, it will be possible to rate several categories at the same time.

The ratings should be made on both the quality and quantity of the behaviors. That is, the characteristics of the behavior should be noted in proportion of their occurrence. For example, if a parent displays a general characteristic of warmth and support for the child punctuated by one incident of irritation, that incident however discordant, should not be the sole basis for rating the parent's behavior as not characteristic of warmth and support.

### **Scoring**

The Likert type of the scales consisting of ratings from one to seven. In assigning a number to the observed behaviors a two-step process should be employed. First, the observer should ask him or herself, "is this dimension characteristic (a 5 or 6 or 7 rating) or not characteristic (a 1 or 2 or 3 rating) or neither characteristic (a 4) of the person being rated?" Once this decision is made, then the rater needs to make a finer discrimination between 5, 6, or 7 and 1, 2, and 3 ratings. The middle number, four, will be used as midpoint determinant of the behavior to answer the question "is the category characteristic or not characteristic of the observed behavior?"

The second step in the scoring process is to assign a specific 1-7 score in each category under consideration. This final scoring should take place after viewing the tape a second time and be reviewed during the third viewing.

Conceptual markers to use in both the initial and final assignation of numbers are the following: “one” indicates that the applied scale is not at all characteristic or indicative of the observed interaction, “three” suggests the interaction is slightly or minimally indicative of the interaction, “five” indicates the behaviors observed are significantly or predominantly characteristic of the interaction and “seven” suggests that the interactions are exceptionally indicative of the behavior category under consideration.

### **Scale Categories**

#### **Positive Regard for the Child:**

**Rationale:** the category represents the parent’s positive feelings towards the child as expressed during interactions with him or her. Positive feelings may be shown by speaking to the child in a warm soft tone of voice, hugging or other expressions of physical affection, an expressive face, smiling, relaxed, oriented toward the child, positive verbal behaviors shown by praising, joking, laughing, listening to the child, making eye contact when talking, watching attentively and appearing playful.

Ratings on this category are based on both the quantity and quality of positive behaviors.

**Quantity** is simply the frequency with which representative behaviors are demonstrated.

**Quality** refers to the intensity of the behavior and may be thought of as levels of expressiveness, enthusiasm, playfulness and or warmth.

**1 = Not at all characteristic:** Parent shows none of the behaviors noted above either physical or verbal. For example, the parent initiates no physical contact with the child and demonstrates no verbal affection. The parent may appear negative with the child or neutral, flat or expressionless. This rating may also be applied if the positive expression seems inappropriate to the situation (laughing at child noncompliance or giving clearly unwanted physical contact. Quality and quantity of behaviors are both nonexistent.

**3 = Minimally characteristic:** Parents display some positive verbal and/or physical behavior toward the child but it is minimal, weak in quality and/or infrequent in quantity. The parent may praise the child one or two times and smile infrequently with the child. The predominant impression of the interaction is neutral/disengaged, intrusive or negative.

**5 = Moderately characteristic:** Parents display predominantly positive behaviors toward the child with more frequent behaviors of higher quality. The sense of the interaction is clearly more positive than the 3 rating but positive regard waxes and wanes. Physical contact appears to be nurturing to the child. Praise is appropriately timed.

7 = Very characteristic: Parents are exceptionally high in physical and verbal expression of positive regard extending throughout the session. There are frequent expressions of praise, almost constant smiling and joking. Parents seem lighthearted and clearly delighted by the child.

### **Negative Regard for the Child:**

Rationale: The category represents both the frequency and intensity of negative affect and behavior toward the child. Behaviors indicative of this category include expressions of disapproval (Not appropriate limit sitting), harsh negative tone of voice when speaking with the child, tense body and or tense facial muscle evidence of frustration with the child an/or a strained or pained expression, threatening the child and or punishment without explanation, physical roughness, and belittling the child, put downs, use of an unflattering names and sarcasm. Intrusive behaviors are scored by another category and should not be considered for this category unless there is a punitive quality to them.

Ratings on this category are based on both the quantity and quality of negative behaviors.

**Quantity** refers to the frequency with which representative behaviors are demonstrated.

**Quality** refers to the intensity of the behavior and may be thought of as levels of tension, harshness or disapproval within the session.

1 = Not at all characteristic: This rating should be assigned to parents who do not display any negative verbal or physical behaviors. No evidence of anger, frustration, disgust or dislike should be evident in parent's voice or facial expression. The parent may appear positive or expressionless and flat but not negative.

3 = Minimally characteristic: This rating should be given to parents who are minimally negative with low frequency and intensity of negative expressions or behaviors. There may be instances of frustration with what the child is doing but positive and neutral expressions may also be observed.

5 = Moderately characteristic: This rating should be assigned to parents who predominately display negative verbal and or physical behaviors but may display some neutral and even positive behaviors as well. Persistent low intensity negative behaviors or some evidence of high intensity negative regard are observed.

7 = Highly characteristic: Feelings of negative regard are expressed strongly, or consistent levels of negative behavior are observed. The overriding affect pervading the parent child interaction is negative.

### **Sensitivity/Supportive Presence:**

Rationale: This category primarily refers to parental behaviors observed in relation to evolved free play, clean- up and puzzle solving activities. Either the parent or the child may

have chosen the activity. The process after the initiation of the activity is the important point. The focus is on how the parent helps the child have positive play and learning experiences especially when the child is dealing with a difficult task or a chosen activity during the free play session. The sensitive and supportive parent shows a balance between allowing the child to play or work autonomously while maintaining a level of involvement and support that ensures the child will succeed in and enjoy the experience. If, for example, a child is having difficulty with a task, the parent may be verbally reassuring and encouraging, may give a suggestion or hint and perhaps lean physically closer to the child. A sensitive interaction is well timed to the child's responses and appears to be in sync or appropriate with what the child seems to need. The parent helps keep the child interested if need be and also allows for autonomy when desired by the child. A sensitive parent helps the child regulate frustration, boredom, and anger with encouragement and the parent can adapt his or her interactions to the child's mood and effort. Conversely, a parent scoring low in this category fails to provide supportive cues to the child, may appear passive, aloof and uninvolved or conversely intrusive, taking over the interaction. He or she may give the impression of greater concern for personal behavior and perceived adequacy as a parent rather than of the child's feelings or actions. The parent may appear to be performing for the camera, for example.

Ratings on this category are based on both the quantity and quality of sensitive/supportive behaviors.

**Quantity** is simply the frequency with which behaviors are demonstrated. **Quality** refers to the intensity of the behavior and may be thought of as levels of verbal support, encouragement connection with the child within the session.

1 Not at all characteristic: There are not signs of parental sensitivity or support for the child. The parent is either totally intrusive or detached, aloof or unavailable. The parent does not respond appropriately to the child's verbal and physical cues and interactions are primarily ill timed or inappropriate. The parent completely fails to be supportive of the child.

3 Minimally characteristic: The parent gives some support but it is sporadic and poorly timed to the child's needs. The child may look frustrated and/or ask for help and the parent fails to respond in a brief time. The dominant mode is one of parental insensitivity i.e., intrusiveness although some positive behaviors like encouragement or praise may also be noted.

5 Moderately characteristic: The parent provides good but occasionally inconsistent support, reassurance and confidence in the child's ability during activities and tasks. The parents are however, predominantly supportive and sensitive but some supportive responses may be ill timed.

7 Highly characteristic: This parent skillfully and sensitively provides support throughout the sessions. The parent sets up the situation demonstrating confidence in the child's ability to complete the activity. If the child is having difficulty, the parent finds a way to encourage whatever effort the child makes. Although inadequate efforts may be rejected, this is done with sensitivity and confidence with the child. This rating should be assigned to parents who are exceptionally sensitive. Interactions with the child are characteristically well timed and appropriate.

### **Detachment/Disengagement:**

**Rationale:** This category represents the level of parental interest and emotional involvement with the child as they play together or work to complete the assigned tasks. The detached parent seems unaware of the child's need for interaction and does not respond to the child's looks, cues or vocalizations. The parent may sit quietly aloof not paying attention to the child and there seems to be little relationship between the child's behavior and the parent's response to it. The child may initiate conversation for example and the parent does not respond or responds inappropriately. The parent's behavioral timing seems out of synchrony with the child's affect and behavior. Simply allowing the child to complete the puzzle or play by him or herself is not necessarily a sign of detachment. This may be appropriate if the child is doing well and is happy and the parent checks in with the child visually. The detached parent seems passive, emotionally uninvolved, bored, and enthusiastic about the child is doing. Behaviors suggestive of detachment may include facing away from the child without attempting to visually check in, infrequent eye contact or conversation, not responding to the child's vocalization and or smiles, and ignoring what the child is doing. Being intrusive and even negative is not being detached.

Ratings on this category are based on both the quantity and quality of negative behaviors.

**Quantity** is simply the frequency with which behaviors are demonstrated. **Quality** refers to the intensity of the behavior and may be thought of as levels of indifference and a lack of involvement within the session.

**1 Not at all characteristic:** This rating should be given to parents who display no detachment or underinvolvement. When interacting with the child, the parent is clearly emotionally involved. These parents may be sensitive to the child's needs or intrusive as rated by other categories.

**3 Minimally characteristic:** This rating should be assigned who display minimal detachment. They may briefly look away from what the child is doing or not respond to everything the child says. While the parent is sometimes uninvolved, he/she is clearly more involved than not.

**5 Moderately characteristic:** This rating should be given to parents who appear predominantly detached. They are observed to be verbally and or physically aloof from the child, facing away more often than being oriented to the child and frequently not responding to the child's conversation. The parent is relatively more uninvolved than involved.

**7 Highly characteristic:** This rating should be assigned to parents who are so detached that it seems worrisome. The child sits without parent attention almost the entire time even when the parent is in close proximity. The parent may move away from the child or withdraw emotionally.

## **Intrusiveness:**

**Rationale:** A parent scoring high in this category lacks respect for the child as an individual and fails to recognize or understand the child's need for autonomy and independence. The parent interferes with the child's needs, desires, interests or actual behaviors and dominates or leads the interaction. Setting appropriate behavioral limits for the child with directives is not necessarily intrusive. Intrusiveness may be reflected by a parents' failure to follow the child's lead in interactions. Choosing the activity during play sessions is intrusive. Intrusiveness can also occur in a physical manner grabbing the child's hands and placing them somewhere else or inappropriate affection such as hugging or kissing that interferes with the child's efforts. The parent may be verbally intrusive by imposing directions or not allowing the child to make suggestions or pursue independent efforts. It is also important to observe the context of parental intrusion referring to child behaviors that precede them and the child's responses to the behaviors. What may seem intrusive to the coder may not be to the child. These context clues are highly subjective, however, and if clear evidence of parental intrusion is present it should be scored as such.

Ratings on the category are based on both the quantity and quality of intrusive behavior.

**Quantity** is simply the frequency with which behaviors are demonstrated. **Quality** refers to the intensity of the behavior and may be thought of as levels of intrusiveness and parental control within the session.

**1 No intrusiveness:** No signs of intrusiveness are present. The parent may be involved with the child yet continue to give sensitive encouragement while allowing the child to choose activities and decide how to complete them. The parent may alternatively, appear totally uninvolved with the child and appear detached or withdrawn. In either case, the parent does not impose directives or suggestions on the child unless the child needs or asks for that direction. If directives or suggestions are given, it is in a manner showing patience and respect for the child. A parent may also offer the child help and let the child decide to accept or reject it. If requested, the parent will allow the child to work alone.

**3 Moderately low intrusiveness:** There is some evidence for intrusiveness but it is not pervasive. The parent may initially choose the play activity but then allow the child to take the lead in play. The instances that do occur are of low intensity and may not interfere materially with the child's need for autonomy. Directives may be poorly timed, for example.

**5 High intrusiveness:** There are clear incidents of intrusiveness throughout the sessions and it is clear that the parent's agenda has precedence over the child's needs and interests. There may be either some high intensity interactions or persistent low level intrusive interactions such as frequent but not constant suggestions as to how activities should proceed. For example, the parent may physically direct behavior more than once or may appear uninvolved for long periods but whenever there is an interaction appear consistently intrusive.

**7 Very high intrusiveness:** The parent is highly intrusive. The parent runs the show and almost constantly intervenes inappropriately without cues from the child with a stream of

directives and suggestions. Highly intrusive parents seem to react to their own schedule rather than basing their actions upon the needs of the child. The parent is domineering and may demonstrate power assertive techniques to get the child to comply either with verbal commands or physical directives.

### **Flatness of Affect:**

**Rationale:** This category represents the parent's level of animation in face and voice. Flatness is exhibited by blank impassive facial expressions and monotone verbal expressions. It is marked by a lack of animation or apparent energy. Parents who display intrusive and negative verbal behaviors or expressions with their children are not flat. Also if the parent is not expressing much verbal animation but is watching the child with interest, it is a sign that the parent's affect may not be flat. The parent may simply be reserved. This category assesses the parent's overall demeanor not just animation with the child. Behaviors are rated not what is being said.

Ratings on this category are based on both quality and quantity of flat behaviors.

**Quantity** is simply the frequency with which behaviors are demonstrated. **Quality** refers to the intensity of the behavior and may be thought of as levels of flatness or blankness.

**1 Not at all characteristic:** This rating should be assigned to parents who exhibit no flatness. There is consistent animation in the parent's demeanor, behaviors, and voice.

**3 Minimally characteristic:** This rating should be given to parents who exhibit some flatness. The parent is usually animated but there is some time when facial expression is blank and impassive and the voice is monotone.

**5 Moderately characteristic:** This rating should be assigned to parents who are predominately flat. Infrequent periods of animation may alternate with more clear and prolonged periods of flatness.

**7 Highly characteristic:** There is a consistent absence of animation in expression and or voice.

## Scoring Sheet for Parent Child Interaction

Name \_\_\_\_\_ Date \_\_\_\_\_ Segment 1 2 3  
Parent ID# \_\_\_\_\_ Child ID # \_\_\_\_\_

### 1. Positive Regard

Notes:

- 1
- 2
- 3
- 4
- 5
- 6
- 7

### 2. Negative Regard

Notes:

- 1
- 2
- 3
- 4
- 5
- 6
- 7

### 3. Sensitivity/Support

Notes:

- 1
- 2
- 3
- 4
- 5
- 6
- 7

### 4. Disengagement/Engagement

Notes:

- 1
- 2
- 3
- 4
- 5
- 6
- 7

5. Intrusiveness

Notes:

- 1
- 2
- 3
- 4
- 5
- 6
- 7

6. Flat Affect

Notes:

- 1
- 2
- 3
- 4
- 5
- 6
- 7

## Appendix C

## CHILD PROBLEM SOLVING MEASURE

ID#: \_\_\_\_\_ Date: \_\_\_\_\_

Interviewer: \_\_\_\_\_

Reliability: \_\_\_\_\_

1. Pretend this is YOU and this is KATHY/DANNY. KATHY/DANNY is the same as you, \_\_\_\_\_, years old. KATHY/DANNY has been on the swing for a long, long time and doesn't want to share the swing with you. YOU would really like to play on the swing. What could you say or do so that YOU could play on the swing?

_____ 1.	_____	_____	_____
_____ 2.	_____	_____	_____
_____ 3.	_____	_____	_____
_____ 4.	_____	_____	_____
_____ 5.	_____	_____	_____
_____ 6.	_____	_____	_____

2. Pretend this is YOU and this JENNY/ANDY. Let's also pretend that this is your FIRST day at school. YOU and JENNY/ANDY are in the same class and YOU would like to be friends with JENNY/ANDY, but JENNY/ANDY doesn't say anything to you. What could YOU say or do so that YOU could get to be friends with JENNY/ANDY?

_____ 1.	_____	_____	_____
_____ 2.	_____	_____	_____
_____ 3.	_____	_____	_____
_____ 4.	_____	_____	_____
_____ 5.	_____	_____	_____
_____ 6.	_____	_____	_____

3. Pretend that this YOU and this ERIKA/JOE. You just got a good spot near the front of the line to go outside and ERIKA/JOE pushes you out of line and takes your place. What could YOU say or do so that YOU could get your place in line back?

_____ 1.	_____	_____	_____
_____ 2.	_____	_____	_____

3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

4. Pretend that this is YOU and this is COLLEEN/JOSH. COLLEEN/JOSH and some other kids are playing on the jungle gym at school. YOU would like to play with COLLEEN/JOSH and other kids, but they haven't asked you. What could YOU say or do to get to play with COLLEEN/JOSH and other kids?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

5. Pretend that this is YOU and this TRACY/TREVOR. You and TRACY/TREVOR are playing a game and you realize that TRACY/TREVOR has taken your turn. What could you say or do so that YOU could get your turn?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

6. Pretend that this is you and that this is KRISTEN/RYAN. KRISTEN/RYAN and some other kids are playing tag. YOU would really like to play with KRISTEN/RYAN and the other kids, but they haven't asked you. What could YOU say or do to get to play with KRISTEN/RYAN and the other kids?

1. \_\_\_\_\_

2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

7. Pretend that this is YOU and this is DONNA/BILLY. You and DONNA/BILLY are both on the playground and DONNA/BILLY starts calling you names and making fun of you. What could YOU say or do to get DONNA/BILLY to stop teasing you?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

8. Pretend that this is you and this NINA/RICHARD. NINA/RICHARD and some other kids are choosing up sides for kickball. YOU would really like to play with NINA/RICHARD and the other kids, but they haven't asked you. What could YOU say or do to get play kickball?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

## Appendix D

## HOME INTERVIEW WITH CHILD (HIWC)

ID# \_\_\_\_\_ Date: \_\_\_\_\_ Interviewer: \_\_\_\_\_  
Scorer: \_\_\_\_\_

A. Pretend that you are standing on the playground playing catch with a kid named Todd/Jessica. You throw the ball to Todd/Jessica and h/she catches it. You turn around, and the next thing you realize Todd/Jessica has thrown the ball and hit you in the middle of the back. The ball hits you hard, and it hurts a lot.

1. Why do you think Todd/Jessica hit you in the back?

\_\_\_\_\_

\_\_\_\_\_

1 Nonhostile

2 Hostile

3 Don't Know

2. What would you do about Todd/Jessica after s/he hit you?

\_\_\_\_\_

\_\_\_\_\_

B. Pretend that you see some kids playing on the playground. You would really like to play with them, so you go over and ask one of them, a kid named Alan/Leah, if you can play. Alan/Leah says no.

3. Why do you think Alan/Lean said no?

\_\_\_\_\_

\_\_\_\_\_

1 Nonhostile

2 Hostile

3 Don't Know

4. What would you do about Alan/Lean after he/she said no?

\_\_\_\_\_

\_\_\_\_\_

C. Pretend that you are walking to school and you are wearing brand new sneakers. You really like your new sneakers and this is the first day you have worn them. Suddenly, you are bumped from behind by a kid named John/Lisa. You stumble into a mud puddle and your new sneakers get muddy.

5. Why do you think John/Lisa bumped into you?

\_\_\_\_\_

\_\_\_\_\_

1 Nonhostile

2 Hostile

3 Don't Know

6. What you do about John/Lisa after he/she bumped you?

---

---

D. Pretend that you are a new kid in school and you would really like to make friends. At lunch time, you see some kids you would like to sit with and you go over to their table. You ask if you can sit with them and a kid named Carl/Carolyn says no.

7. Why do you think Carl/Carolyn said no?

---

---

1 Nonhostile

2 Hostile

3 Don't Know

8. What would you do about Carl/Carolyn after he/she said no?

---

---

E. Pretend you go to the first meeting of a club you want to join. You would like to make friends with the other kids in the club. You walk up to some of the other kids and say "HI!", but they don't say anything back.

9. Why do you think the other kids didn't answer you?

---

---

1 Nonhostile

2 Hostile

3 Don't Know

10. What would you do about the other kids after they didn't answer you?

---

---

F. Pretend that you are walking down the hallway in school. You're carrying your books in your arm and talking to a friend. Suddenly, a kid named Brett/Devon bumps you from behind. You stumble and fall and your books go flying across the floor. The other kids in the hall start laughing.

11. Why do you think Brett/Devon bumped into you?

---

---

1 Nonhostile

2 Hostile

3 Don't Know

12. What would you do about Brett/Devon after he/she bumped into you?

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---

G. Pretend it is your first day at school. You don't know a lot of the other kids and you would like to make friends with them. You see some kids playing a rope game so you walk up and say "Hi!" but no one answers you.

13. Why do you think the other kids didn't answer you?

---

---

1 Nonhostile

2 Hostile

3 Don't Know

14. What would you do about the other kids after they didn't answer you?

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---

H. Pretend you and your class went on a field trip to the zoo. You stop to buy a coke. Suddenly, a kid named Al/Robin bumps your arm and spills your coke all over your shirt. The coke is cold, and your shirt is all wet.

15. Why do you think Al/Robin bumped into you?

---

---

1 Nonhostile

2 Hostile

3 Don't Know

16. What would you do about Al/Robin after he/she bumped into you?

---

---

## Appendix E

## Social Behavior Scale

Child's Name: \_\_\_\_\_

Teacher's Name: \_\_\_\_\_

Date form completed: \_\_\_\_\_

How long have you know this student? \_\_\_\_\_

Using the 5 point scale below, please indicate the degree to which each statement describes this child. Then place the completed scale in the envelope provided and mail back to Dr. Mary Haskett. Thank you.

1 = Never True 2 = Rarely True 3 = Sometimes True 4 = Often True 5 = Almost Always True

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 1. This child is good at taking turns.   | 1 | 2 | 3 | 4 | 5 |
| 2. This child tells a peer that s/he won't play with that peer or be that peer's friend unless s/he does what this child asks. | 1 | 2 | 3 | 4 | 5 |
| 3. This child is a solitary child.   | 1 | 2 | 3 | 4 | 5 |
| 4. This child hurts other child by pinching them.  | 1 | 2 | 3 | 4 | 5 |
| 5. This child tries to get others to dislike them by telling lies about the peers to others.                                   | 1 | 2 | 3 | 4 | 5 |
| 6. This child likes to play alone.   | 1 | 2 | 3 | 4 | 5 |
| 7. This child is ignored by peers.   | 1 | 2 | 3 | 4 | 5 |
| 8. This child verbally threatens to hit or beat up other children.   | 1 | 2 | 3 | 4 | 5 |
| 9. This child ruins others peer's things when s/he is upset.   | 1 | 2 | 3 | 4 | 5 |
| 10. Peers say mean things to this child at school.   | 1 | 2 | 3 | 4 | 5 |
| 11. This child pushes or shoves other children.  | 1 | 2 | 3 | 4 | 5 |
| 12. This child prefers to play alone.  | 1 | 2 | 3 | 4 | 5 |
| 13. This child verbally threatens to physically harm a child in order to get what they want.                                   | 1 | 2 | 3 | 4 | 5 |
| 14. This child tells others not to play with or be a peer's friend.  | 1 | 2 | 3 | 4 | 5 |
| 15. This child is helpful to peers.  | 1 | 2 | 3 | 4 | 5 |

16. This child is not chosen as a playmate.	1	2	3	4	5
17. When mad at a peer, this child keeps that peer from being in the play group.	1	2	3	4	5
18. Peers avoid this child.	1	2	3	4	5
19. This child tries to cheer up peers when they are sad or upset about something.	1	2	3	4	5
20. This child tries to dominate or bully peers.	1	2	3	4	5
21. This child doesn't have much fun.	1	2	3	4	5
22. This child is ridiculed or picked on by peers.	1	2	3	4	5
23. This child doesn't smile much.	1	2	3	4	5
24. Peers refuse to let this child play.	1	2	3	4	5
25. This child keeps peers at a distance.	1	2	3	4	5
26. This child kicks or hits others.	1	2	3	4	5
27. This child avoids peers.	1	2	3	4	5
28. This child is kind to peers.	1	2	3	4	5
29. This child tries to get others to dislike a peer.	1	2	3	4	5
30. This child is not liked much.	1	2	3	4	5
31. This child is excluded from peer's activities.	1	2	3	4	5
32. Peers say bad things about this child to other kids at school.	1	2	3	4	5
33. This child withdraws from peer activities.	1	2	3	4	5
34. This child tells a peer that they won't be invited to their birthday party unless s/he does what the child wants.	1	2	3	4	5
35. This child gets hit or bullied at school.	1	2	3	4	5
36. This child looks sad.	1	2	3	4	5

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 37. This child verbally threatens to keep a peer out of the play group if the peer doesn't do what the child asks. | 1 | 2 | 3 | 4 | 5 |
| 38. This child says or odes nice things for other kids.  | 1 | 2 | 3 | 4 | 5 |
| 39. Please rate this child's <u>overall academic performance</u> this year.  | A | B | C | D | F |
- 

		Sum	Mean
Prosocial	1: __, 15: __, 19: __, 28: __, 38: __,	_____/5	_____
Relational A.	2: __, 5: __, 14: __, 17: __, 29: __, 34: __, 27: __	_____/7	_____
Overt A.	4: __, 8: __, 9: __, 11: __, 13: __, 20: __, 26: __	_____/7	_____
Asocial	3: __, 6: __, 12: __, 25: __, 27: __, 33: __	_____/6	_____
Excluded	7: __, 16: __, 18: __, 22: __, 24: __, 30: __, 31: __	_____/7	_____
Depressed	21: __, 23: __, 36: __	_____/3	_____
Victimized	10: __, 32: __, 25: __		

## Appendix F

## Procedures for observations sessions

### Prior to school visit:

You will be called as soon as a data collection session is scheduled. The information will also be emailed to you.

The following information will be provided:

- ◆ Name and subject # of the child to observe
- ◆ Name of the school, principal, and teacher
- ◆ Names of the observers who should be present
- ◆ Whether you are primary or reliability observer

Gather materials:

- ◆ Sufficient data sheets (white for primary; yellow for reliability)
- ◆ Clipboard and pencils
- ◆ Two tape players, two interval tapes, back-up batteries
- ◆ Your name tag
- ◆ Copy of teacher report forms and return envelope for teacher
- ◆ Sunglasses
- ◆ Phone numbers and directions to each school.

### At the school:

When arriving at the school (10 minutes prior to scheduled observation), let the main office know you have arrived, sign in and proceed to the classroom. Make sure your name tag is on. Remind the teacher of your purpose and request the teacher report forms. If the teacher has to cancel the play session, reschedule and leave the room. Make sure to check out in the main office. Let Dr. Haskett know when the session has been rescheduled.

If the play session will occur, wait quietly back in the room until the class is ready to proceed. Ask the teacher to unobtrusively point out the child you will be observing and make sure you are clear as to which child s/he has pointed out.

Follow the classroom to the playground or the gym.

### On the playground:

Put on your sunglasses. Find an unobtrusive, centrally located area in which to observe and put the headphones on. Do not engage in talk amongst yourselves. Instead fix your vision into the distance or focus on your papers. Avoid eye contact with children but do not ignore children who make direct attempts to get your attention. Estimate and record the number and ages of children present on the playground.

Continue until the data collection session is complete (30 minutes) or until the children are not longer available to observe.

If the session lasts less than 20 minutes, schedule a second session with the teacher, and inform Dr. Haskett.

After observations:

- ◆ If possible, thank the teacher for his/her assistance while still on the playground so you do not have to interrupt the class once they are inside.
- ◆ Note any irregularities in the data collection session.
- ◆ Go directly to the office to sign out of school.
- ◆ Return data to the lab within 24 hours.
- ◆ Report any complications to Dr. Haskett (515-1710) immediately.

This observational approach involves interval coding. There may be two coders: a primary coder and a secondary coder. The primary coder is responsible for gathering all materials (cassette recorder, interval tape, coding sheets, teacher report forms, information on the child, and directions to the school) and returning all materials to the lab within 24 hours. The secondary coder is responsible for recording the information at the school site and giving the complete form to the primary coder to return to the lab. This observation system is called a focal child system. One child, called the “target”, is observed continuously for 30 minutes.

Behavior to be coded includes the following four social behaviors:

1. Engagement (ENG) Verbal or physical behavior directed to another peer or group of peers (not teachers) that has the purpose of engaging the peer in interaction or continuing the interaction begun by a peer. This may be neutral or positive behavior. Defining features of engagement include general proximity and active behavior such as touching, eye contact, talking, etc. Actively participating in a game is also included. It is not onlooker behavior such as hanging out beside a group of children (for example on the monkey bars), watching but not joining the activity.

Examples include:

- ◆ Offer to help or request for help, sharing, providing information
- ◆ Invitation to play or response to invitation
- ◆ Playing chase or racing with another child or group of children
- ◆ Swinging or playing on monkey bars, with conversation or eye contact
- ◆ Digging a hole in the dirt with others (but only if they are working on the same hole, not if target is digging a hole beside others but not joining via eye contact or conversation)

2. Negative (NEG) Negative verbal or gestural behavior directed to another child, or saying negative things about another child. This category does not include physical contact (see RP and AGGR below).

Examples include:

- ◆ teasing (“your underwear is showing,” “ha ha you dropped it”)
- ◆ reprimands (“you shouldn’t do that”)
- ◆ commands (“command here now”)

- ◆ tattling (even if legitimate complaint)
- ◆ threatening (“I’m gonna hit you”)
- ◆ profanity
- ◆ saying mean things (“his parents are so ugly”)
- ◆ instances of relational aggression (“you can’t play with us”)
- ◆ sticking tongues out, displaying a threatening gesture
- ◆ taunting or challenging gestures, growling

3. Rough Play (RP) Physical contact with a peer that is rough and negative but not of sufficient to be AGGR. These behaviors often occur during “roughhousing” but might occur in isolation, for example, brushing up against another child roughly while running past another child. This behavior may occur in the context of engagement, but might be coded alone if only the RP occurs in the interval

Examples include:

- ◆ holding onto a child’s clothes
- ◆ holding a peer tightly
- ◆ elbowing or shouldering
- ◆ physical contact while playing touch football or other game
- ◆ bumping into one another

4. Aggression (AGGR) Physical contact with a peer or object that constitutes an attack with clear potential to harm OR taking something belonging to another child. This does not have to be intent (we can’t guess at a child’s intentions). Record even if the behavior seems ‘accidental’. A single behavior chain may include RP then become AGGR.

Examples include:

- ◆ hit, slap, scratch, pull hair, bite, kick, pinch, butt with head, head lock, twist toward the child, pulling to the ground.
- ◆ destroying property
- ◆ taking (or attempting to take) a toy that someone else is clearly playing with.
- ◆ taking a toy is recorded when the object is in the hands of another child or if it is a piece of a game being played with (e.g., a ball).
- ◆ taking articles of clothing such as shoes
- ◆ any type of hitting even when part of a game
- ◆ if target is holding another person, it would be aggression when the target tries to restrain the person while she or he is trying to get away

ID# \_\_\_\_\_ Date \_\_\_\_\_ Observer \_\_\_\_\_  
 Observation# \_\_\_\_\_ Sq. Footage \_\_\_\_\_ #/Age range of peers \_\_\_\_\_

	Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg
1.1						11.1						21.1				
1.2						11.2						21.2				
1.3						11.3						21.3				
1.4						11.4						21.4				
	Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg
2.1						12.1						22.1				
2.2						12.2						22.2				
2.3						12.3						22.3				
2.4						12.4						22.4				
	Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg
3.1						13.1						23.1				
3.2						13.2						23.2				
3.3						13.3						23.3				
3.4						13.4						23.4				
	Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg
4.1						14.1						24.1				
4.2						14.2						24.2				
4.3						14.3						24.3				
4.4						14.4						24.4				
	Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg
5.1						15.1						25.1				
5.2						15.2						25.2				
5.3						15.3						25.3				
5.4						15.4						25.4				
	Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg
6.1						16.1						26.1				
6.2						16.2						26.2				
6.3						16.3						26.3				
6.4						16.4						26.4				
	Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg
7.1						17.1						27.1				
7.2						17.2						27.2				
7.3						17.3						27.3				
7.4						17.4						27.4				
	Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg
8.1						18.1						28.1				
8.2						18.2						28.1				
8.3						18.3						28.3				
8.4						18.4						28.4				
	Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg
9.1						19.1						29.1				
9.2						19.2						29.2				
9.3						19.3						29.3				
9.4						19.4						29.4				
	Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg			Eng	Neg	Rp	Agg
10.1						20.1						30.1				
10.2						20.2						30.2				
10.3						20.3						30.3				
10.4						20.4						30.4				

Was this typical behavior for the child? \_\_\_\_\_

## Appendix G

Figure 1. Distribution of scores for the Harsh Parenting variable.

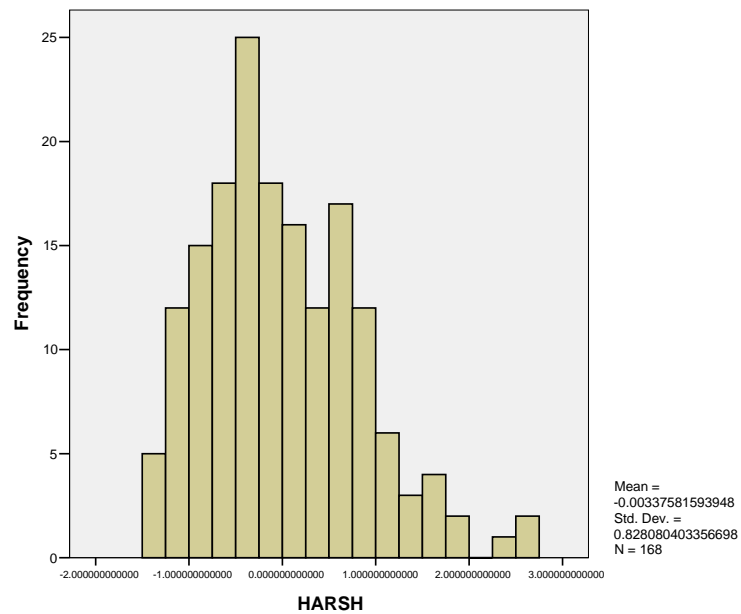


Figure 2. Distribution of scores for the Child Aggression variable that reveals a positive skew.

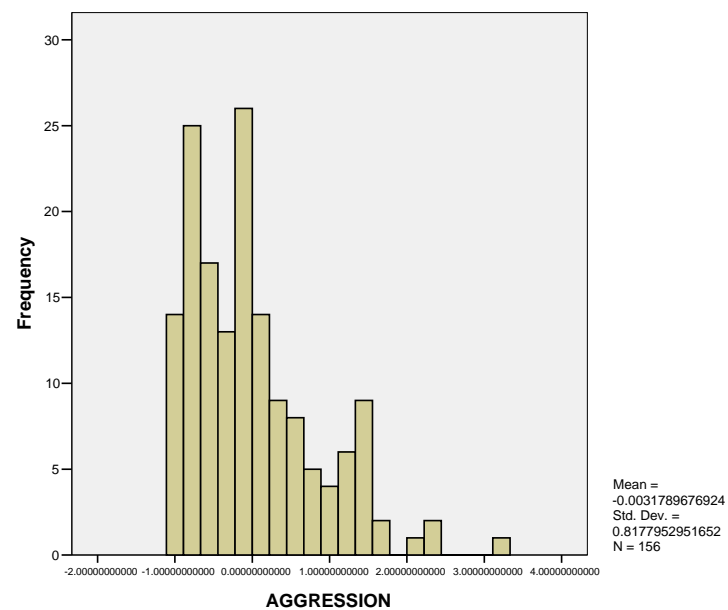


Figure 3. Distribution of scores for the Child Aggression variable after log transformation.

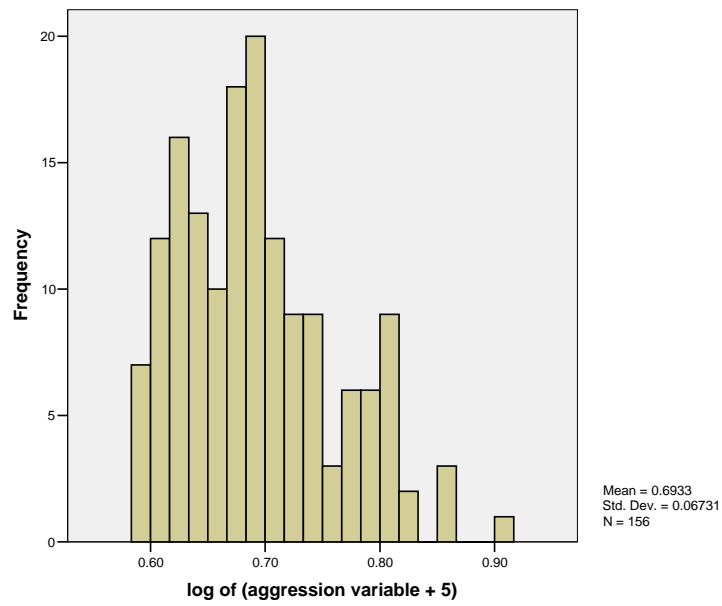


Figure 4. Distribution of scores for the Intent Attributions variable.

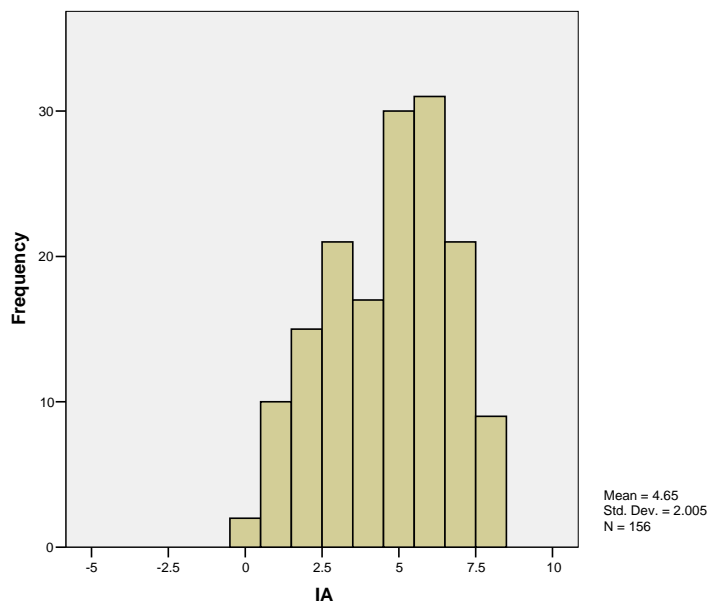


Figure 5. Distribution of scores for the Response Generation variable.

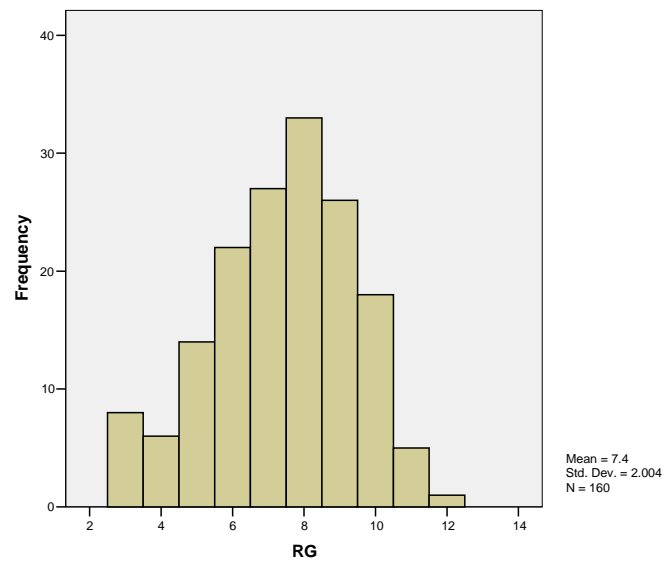


Figure 6. Distribution of scores for the Response Decision variable that reveals a strong floor effect and positive skew.

