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Pathways to bullying: early attachment, anger proneness, and social information processing in the development of bullying behavior, victimization, sympathy, and anti-bullying attitudes

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PATHWAYS TO BULLYING: EARLY ATTACHMENT, ANGER PRONENESS, AND SOCIAL INFORMATION PROCESSING IN THE DEVELOPMENT OF BULLYING BEHAVIOR, VICTIMIZATION, SYMPATHY, AND ANTI-BULLYING ATTITUDES

by

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CERTIFICATE OF APPROVAL

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PH.D. THESIS

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This is to certify that the Ph.D. thesis of

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has been approved by the Examining Committee for the thesis requirement for the Doctor of Philosophy degree in Psychology at the August 2014 graduation.

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ABSTRACT

Bullying is a pervasive problem among children and adolescents worldwide, but relevant research, although growing, lacks coherence. The proposed study is the first to integrate three large bodies of research – on children's attachment, anger, and Social Information Processing (SIP) – in a comprehensive, developmentally informed, multi-method, multi-trait design to elucidate the origins of bullying behavior, victimization, and anti-bullying attitudes and emotions. It was predicted that (1) children's early attachment insecurity would be linked to their maladaptive SIP patterns and to higher anger proneness; (2) higher anger proneness would be associated with maladaptive SIP; (3) anger proneness and maladaptive SIP would both predict greater parent-reported aggression; (4) parent-reported aggression would predict both bullying behavior and victimization; (5) lower anger proneness and more adaptive SIP would be associated with anti-bullying attitudes and sympathy for victims of bullying. A series of path analyses revealed overall well-fitting models; however, the analyses of the specific pathways described in the hypotheses above were less conclusive. Theoretical and empirical evidence suggests that attachment security, anger proneness, and social information processing each plays a role in the development of positive or negative peer relations, but how these factors come together needs to be further elucidated.

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CHAPTER I

INTRODUCTION

Bullying is well recognized as a problem that affects many areas of children's development and well-being and has become a topic of worldwide interest. Bullying is defined as aggression that is intended to harm or disturb another person, occurring over a period of time, and involving a power imbalance such that a more powerful person is abusing a less powerful person (Olweus, 1993). The behavior can take multiple forms, including aggression that is verbal (e.g., name-calling, threatening, taunting), physical (e.g., hitting), or psychological (e.g., spreading rumors, shunning, excluding) (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001; Olweus, 1993). Relational aggression, a sub-type of bullying, involves the manipulation of one's friendships and peer relationships through negative behaviors such as social exclusion or rumors (Crick & Grotpeter, 1995).

In addition to more traditional forms of bullying (i.e., physical and relational aggression), another form has emerged along with modern technology – cyber bullying. Cyber bullying is aggression through electronic communications by which individuals harass, embarrass, or hurt others, which sometimes includes sharing confidential information, pictures, videos, or text messages that were not meant to be shared (Juvonen & Gross, 2008; Kowalski & Limber, 2007; Patchin & Hinduja, 2006). When children go home from school, where most bullying traditionally takes place, they are still connected to their peers through the internet and text messages. Thus, bullying is no longer contained within the school day - cyberspace creates a context where people can be bullied all day long (Patchin & Hinduja, 2006). Juvonen and Gross (2008) reported

that children who were victims of bullying at school were seven times more likely also to be bullied online. Thus, bullied children are often left without a safe haven, making research on the antecedents of bullying that much more important.

Due to schools taking a more active role in bullying, and the media talking more about the consequences of bullying, public interest in bullying behavior has increased over time. In a recent paper, Rigby and Smith (2011) examined if school bullying has risen since the late 1990s; however, after examining data sets from several countries, they found that physical and relational aggressive bullying in schools seem to have declined. Research on trajectories of cyber bullying is less conclusive - in two samples (one from American students and one from British students) cyber bullying seems to have increased, but more research should be conducted before long-term conclusions are made. Nonetheless, bullying remains a pervasive public health concern.

A nationally representative survey of American children in grades 6 through 10 examined the prevalence of bullying and victimization. Supported by the National Institute of Child Health and Human Development, the Health Behavior of School-Aged Children (HSBC) study examined bullying behavior, victimization, and various measures assessing psychosocial adjustment (e.g., well-being, substance use, loneliness). In a sample of over 15,000 students, 10.6% of youth reported bullying "sometimes" and 8.8% of youth reported frequent bullying (i.e., once a week or more). For victimization due to bullying, 8.5% of the sample reported being bullied "sometimes" and 8.4% of the youth reported frequent bullying. A rather large number of youth reported either being bullied, bullying others, or both (29.9%) (Nansel et al., 2001). In another sample of around 7,000 adolescents, Wang, Iannotti, and Nansel (2009) found that students reported bullying

others more frequently: examining bullying behavior as “at least once in the last two months”, 13.3% of adolescents reported physical bullying, 37.4% reported verbal bullying, 27.2% reported social/relational bullying, and 8.3% reported cyber bullying others. For victimization, the prevalence rates (at least once in the last two months) were 12.8% for physical victimization, 36.5% for verbal victimization, 41.0% for social/ relational victimization, and 9.8% for cyber victimization. Thus, the prevalence rates of bullying and victimization do vary by sample and study, but the trends suggest that a sizeable percentage of students will experience bullying, either as agents or victims, in their lives.

The prevalence of bullying in schools differs by age and gender. Several studies have found that bullying behavior is greatest in middle to late childhood and declines over time (Olweus, 1993; Rigby & Slee, 1991). Researchers have suggested that the age decline in bullying may be caused by changes in peer hierarchy (as one becomes older, there are fewer older children in a more powerful position who bully), or that younger children are simply more likely to bully because they do not fully understand that bullying violates the rights of others and do not have the social skills to deal with bullying (Smith, Madsen, & Moody, 1999). Further, aggressive behaviors in general tend to decline as compliance and self-regulation develop more fully over time (Dodge, Coie, & Lynam, 2006).

In terms of gender, it is commonly found that males report being bullies and being bullied more often than females (Bosworth, Espelage, & Simon, 1999; Nansel et al., 2001). However, to qualify this gender difference, physical bullying (e.g., pushing, hitting, slapping) is more frequent for males, but relational bullying (e.g., spreading

rumors, making sexual comments) is more common for females (Boulton & Underwood, 1992; Bosworth, Espelage, & Simon, 1999).

Schools are now taking a more active role in defining, examining, and preventing bullying, and for good reason. Both bullies and victims of bullying experience problems in several areas of life, some of which will affect them into adulthood. In particular, compared to those who do not bully, children and adolescents who bully are more likely to have conduct problems and to dislike school (Slee, 1995a), to have general problems in psychological and physical well-being (Rigby, 1998; Slee, 1995b), to report higher levels of anger, impulsivity, and depression (Bosworth, Espelage, & Simon, 1999), to use substances, and to have poor academic achievement (Nansel et al., 2001). Victims of bullying are more likely to inflict self-injuries or have suicidal ideations, to experience greater anxiety, depression, insecurity, loneliness, and unhappiness, to have lower self-esteem (Craig, 1998; Guerra, Williams, & Sadek, 2011; Nansel et al., 2001; Rigby & Slee, 1991; Slee, 1995a; Winsper, Lereya, Zanarini, & Wolke, 2012), and to have overall problems in their peer relationships (Nansel et al., 2001; Wolke, Woods, Bloomfield, & Karstadt, 2000). Children who are both bullies and victims face the most problems and exhibit the poorest psychosocial functioning (Austin & Joseph, 1996; Haynie et al., 2001), which may include any of the above problems observed in bullies or victims. All three groups (bullies, victims, and bully/victims) have elevated scores in conduct problems and hyperactivity (Wolke, Woods, Bloomfield, & Karstadt, 2000). Given the prevalence of bullying and the significant effects that bullying and victimization have on children's and adolescents' lives, it is imperative for researchers to elucidate the origins

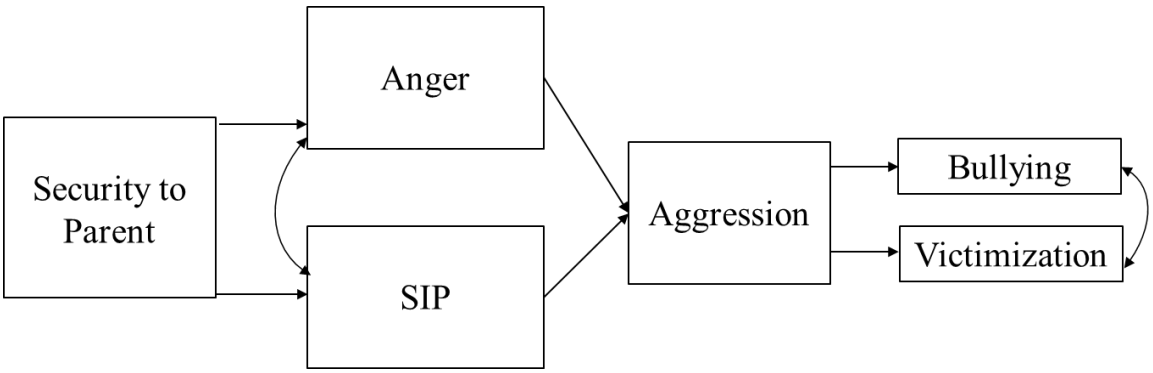
of bullying to inform effective prevention and intervention efforts that will ultimately protect children from being bullied or becoming bullies.

The goal of this research was to propose conceptually integrative models of the development of bullying and victimization as well as a model of the development of adaptive, prosocial functioning in peer relations that encompasses sympathy for victims of bullying and negative attitudes toward bullying. These models bring together multiple areas of developmental research that have rarely intersected: early relationships, anger proneness, and social information processing (see Figures 1a and 1b).

In the proposed developmental model of bullying (Figure 1a), poor early childhood relationships with mothers and fathers set in motion pathways to future negative peer relationships. Social information processing is the key mediating mechanism that drives the maladaptive pathway in the proposed model: Children who have insecure early relationships with parents develop maladaptive biases and deficits in social information processing that in turn propel aggression. It is also posed that anger proneness plays a key role in the development of bullying behavior, and it is proposed that anger emerges, in part, from poor parent-child relationships. Furthermore, anger is associated with maladaptive biases in social information processing in ways that predispose one to aggression, and furthermore, it contributes directly to aggressive behavior and bullying.

The development of victimization is expected to progress along similar pathways as bullying (Figure 1a). Victimized children are expected to have early insecure relationships with caregivers, and as a consequence they are also proposed to develop deficits in social information processing. Victimized children may develop anger as a

a



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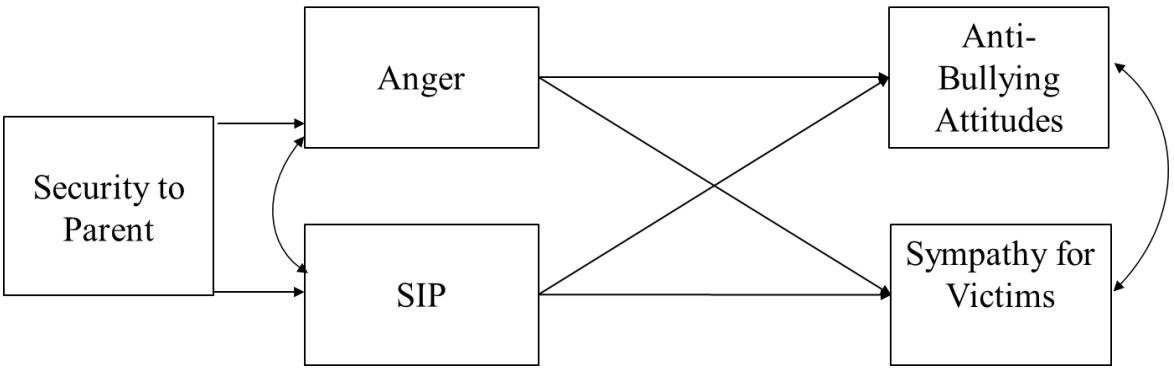


Figure 1. Theoretical models for (a) paths to bullying and victimization and (b) anti-bullying attitudes and sympathy for victims.

result of poor early parent-child relationships; however, the role of anger in victimization is not as well defined as it is for children who are agents of bullying. Thus, the inclusion of anger in the pathway towards victimization will be more exploratory in nature.

Finally, a path toward adaptive and prosocial peer relations is also proposed. In Figure 1b, it is suggested that children who have positive, secure early parent-child relationships develop prosocial and positive expectations of others. Contrary to insecure children, secure children have been found to show less anger (e.g., Kochanska, 2001).

Thus, these children are expected to develop adaptive social information processing skills that foster anti-bullying attitudes and empathy for victims of bullying, thereby promoting a prosocial approach to aggression.

Two different models are proposed in the current study to examine the origins of bullying, victimization, and prosocial, adaptive peer functioning. Although parts of the models are theoretically and empirically supported, the comprehensive models developed here should be considered exploratory.

Early Parent-Child Relationships and Peer Relations

Parenting Behavior and Bullying

Researchers have long examined parenting behaviors to help elucidate the origins of aggression. Voluminous research from the late 1970s and early 1980s suggested that aggressive adults (most often parents) serve as models to children; thus, children's aggressive behavior develops through social learning (e.g., Bandura, 1973). In recent years, much research has been devoted to the examination of specific parenting characteristics and their links with aggression and bullying behavior. Parenting may be particularly important to study in the realm of bullying in young children, rather than adolescents, because parents are the center of young children's worlds (Smith & Myron-Wilson, 1998). Further, there may be inter-generational transmission of aggressive tendencies; as an example, Farrington (1993) found that fathers who had been bullies at school age were more likely to have children who bullied.

Olweus, the preeminent scholar in the area of bullying, strongly supported the notion that poor parenting strategies and negative parent-child environments could create aggressiveness in children. He considered parents' emotional attitudes toward the child

(e.g., lack of warmth), permissiveness regarding aggression, and use of power assertive strategies (e.g., physical punishment) (e.g., Olweus, 1993) as key in the development of aggression. Empirical research has supported Olweus' observations. Bullying behavior in children and adolescents has widely been associated with parent-child relationships characterized by low parental involvement and poor monitoring (Curtner-Smith, 2000; Dishion, 1990; Flouri & Buchanan, 2003; Olweus, 1980; 1993; Pepler, Jiang, Craig, & Connolly, 2008; Ybarra & Mitchell, 2004), low warmth and high hostility (Olweus, 1980, 1993; Pettit & Bates, 1989; Schwartz, Dodge, Pettit, & Bates, 1997; Strassberg, Dodge, Pettit, & Bates, 1994), and harsh, punitive, and/or inconsistent discipline (Barnow et al., 2001; Curtner-Smith, 2000; Dishion, 1990; Espelage, Bosworth, & Simon, 2000; Loeber & Dishion, 1983; Olweus, 1993; Schwartz, Dodge, Pettit, & Bates, 1997). These findings, unsurprisingly, are in line with Patterson and colleagues' (e.g., Patterson, DeBaryshe, & Ramsey, 1990) coercive family process theory that states that ineffective and negative parenting strategies set the stage for the development of antisocial behavior. In addition, poor parenting strategies may be particularly harmful to children with any type of vulnerabilities (e.g., low fear or anger proneness), as this particular combination has been has been shown to launch children on an antisocial path (Fowles & Dindo, 2006).

Much of the research on parenting as related to peer aggression has focused on bullying; however, some research has found associations between parenting and victimization. In boys, victimization has been associated with maternal over-protectiveness, whereas in girls, victimization has been linked to maternal rejection (Finnegan et al., 1998; Olweus, 1993). Children who are high in both victimization and

bullying have reported the least amount of warmth and the greatest levels of heavy-handed discipline, and low monitoring (Bowers, Smith, & Binney, 1992). Further, boys who were victims and who were also aggressive had early histories of harsh and disorganized home environments where hostile or rejecting parent-child relationships were common (Schwartz et al., 1997; Veenstra et al., 2005).

Some parenting strategies or environments can act as buffers or protective factors against bullying and victimization. For example, warmth and support from parents can protect children from becoming both a bully and a victim (Bowers et al., 1994; Haynie et al., 2001). Adolescents who had greater parental support were significantly less likely to participate in four different forms of bullying (Wang, Iannotti, & Nansel, 2009). Further, children who are securely attached to their caregivers are more likely to be empathetic, as evidenced by studies by several lines of research (Panfile & Laible, 2012; van der Mark, van IJzendoorn, & Bakermans-Kranenburg, 2002). The general idea is that children who experience responsive, sensitive, and empathetic caregiving are likely to develop empathic responses to others in need (Kenstenbaum, Farber, & Sroufe, 1989; Zahn-Waxler & Radke-Yarrow, 1990; Zahn-Waxler, Radke-Yarrow, & King, 1979). Higher levels of empathy are associated with more prosocial behavior and defending victims (Barchia & Bussey, 2011; Eisenberg & Fabes, 1998; Gini, Albiero, Benelli, & Altoe, 2008; Nickerson, Mele, & Princiotta, 2008).

Parent-Child Attachment and Peer Relations

Reflecting the state of the field thus far, bullying, victimization, and prosocial behaviors have been mostly discussed in relation to parenting behaviors and characteristics. More recently, in the wake of the rapid ascent of attachment theory,

increasing attention has been directed toward the role of early parent-child security and insecurity in the development of aggression (for a recent meta-analysis, see Pasco Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, & Roisman, 2010). Attachment theory provides a way of describing how individuals form affectional bonds with close others; broadly, attachment theory suggests that certain needs are fundamental within social relationships and whether or not these needs are met within caregiving relationships determines if attachment security is established (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969/1982; Hazan & Shaver, 1994). Research on parenting and bullying usually has not examined the mechanism by which children come to be bullies or victims; however, here it is suggested that early attachment representations and internal working models of parents and social relationships in general can set the stage for children's aggressive trajectory or an adaptive trajectory in their social world. Thus, the tenets of attachment theory dovetail substantially with research on anger and social information processing.

Internal working models that children develop of themselves and of their caregivers are key constructs in attachment theory. Developed within attachment relationships, internal working models are cognitive representations of close others and the self that allow individuals to form both the ideas on what to expect from others and the appropriate responses based on those expectations (Bowlby, 1969/1982, 1980; Bretherton, 1990; Shaver, Collins, & Clark, 1996). Internal working models help organize past and future social interactions; although not directly observable, they can operate consciously and unconsciously. They are often considered to be similar to schemas, templates, or scripts of the "whats" and "hows" of relationships (e.g., what one

expects relationships to be like; how much love is enough) (Bretherton, 1985; Main, Kaplan, & Cassidy, 1985). It should be noted that internal working models of attachment, although similar to, are not exactly the same as schemas, scripts, and other social-cognitive structures. Working models are more motivational, often very difficult to verbalize, more unconscious, contain more than just "cool" cognitions because they are infused with emotions, and are inherently always relational in nature (Shaver et al., 1996).

Internal working models develop very early in life. Bowlby (1969/1982) believed that a propensity to form attachment is innate and a product of evolution, central for survival. Infants are born with a behavioral system that continually assesses whether one's attachment needs are being met. If the infant's needs are met (e.g., their caregiver is attentive, sensitive, warm, and responsive), the infant forms expectations that close others are predictable and responsive, and views the self as lovable and special. Accordingly, the infant exhibits emotions and behaviors that suggest that he or she is happy and secure in the relationship, confident in the caregiver's availability and willingness to comfort and protect, trusting, low in anger, and welcoming of social interactions. If, however, the infant's needs are not met (e.g., the caregiver is not attentive, unavailable, emotionally negative, unresponsive, unpredictable, or frightening), the child shows emotions and behaviors that suggest the child is fearful and anxious, lacks confidence and trust, and wishes to avoid or resist interaction (e.g., shows anger, has temper tantrums, pushes away caregivers when they attempt to make contact) (Ainsworth & Bell, 1970; Shaver et al., 1996; Sroufe, 1985). These emotions and behaviors become patterns of feeling, thinking, and behaving and create lasting individual differences in attachment styles. One's internal

working models of the self and others shape the ways in which one behaves and feels within close relationships; developmentally, these patterns determine one's attachment style and "states of mind" with regard to relationships (Bowlby, 1969/1982; Hazan & Shaver, 1994).

Young children's attachment styles are assessed most commonly in the Strange Situation (Ainsworth et al., 1978), a paradigm that examines infants during times of separation and reunion with caregivers. *Secure* infants are able to explore the environment with confidence and curiosity, while using the caregiver as a secure base, and are easily comforted when distressed and seem to trust that their caregiver will be responsive if they need help. *Insecure ambivalent* (or resistant) infants are reluctant to explore, excessively cry when they are separated from the caregiver, are not easily comforted, and mix proximity seeking with resistance; they develop their internal working models based on caregivers who are inconsistent and unreliable. *Insecure avoidant* infants tend to have caregivers who are consistently unresponsive and, consequently, those children appear unconcerned or dismissive about the caregiver leaving or returning (Ainsworth & Bell, 1970; Bowlby, 1969/1982; Hazan & Shaver, 1994; Shaver et al., 1996). *Insecure disorganized* children show an incoherent pattern of behavior (Main & Solomon, 1990). In the Strange Situation, their behavior lacks a consistent set of responses, and behaviors can range from helpless behaviors, to alternating between avoidance and approach, to prolonged periods of freezing any motions, to bizarre or stereotypic behaviors. Although open to changes, these attachment styles have a significant long-term stability (Bowlby, 1979; Main, Kaplan, & Cassidy, 1985).

Cognitive representations of individuals' selves and others stem from early experiences with caregivers. If experiences are relatively consistent across infancy, childhood, and adolescence, internal working models become solidified and specific representations can generalize into more abstract representations (Bowlby, 1973; Shaver et al., 1996). Thus, early relationships with caregivers can shape all subsequent relationships. While interpersonal relationships of all types can be affected by one's attachment style, for children, peer relationships may be particularly affected. Children of differing attachment styles function differently in peer situations. In general, children who are secure do well in social situations, whereas children who are insecure have poor peer relations (Berlin, Cassidy, & Appleyard, 2008; Kerns, 2008).

Children who are insecurely attached show anxiousness and insecurity with peers (Smith & Myron-Wilson, 1998). Insecure avoidant children do not trust others and expect others to be hostile towards them; thus, they may become aggressive and hostile during interactions with peers (Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989; Shaver et al., 1996). By middle childhood, children who are avoidant have the most impoverished peer relations (compared to secure or resistant children), as they do not seem to understand how to relate to people or social environments (Shaver et al., 1996). Thus, the early life of avoidant children is filled with attempts to regulate their own behavior since their caregiver did not provide comfort when they were distressed. Consequently, their representation of others becomes cold and distant, as the child is focused on more self-reliance than on others. Moreover, their behavior often appears hostile during peer interactions or within peer relationships, and they show less empathy for others (Kestenbaum, Farber, & Sroufe, 1989; Shaver et al., 1996).

Insecure resistant/ambivalent children received unpredictable caregiving and, accordingly, they often lack self-esteem or sense of worthiness, and their social relationships are unstable and maladaptive. They also show a considerable amount of anger during interactions with others (Ainsworth et al., 1978). Children who are ambivalent tend to be the ones most victimized by their peers (especially by avoidantly attached peers) (Renken et al., 1989; Troy & Sroufe, 1987). By middle childhood, ambivalent children tend to have fewer social skills than secure children, and when asked about their peer relations, they exhibit anxiety and negative attitudes (Elicker, Englund, & Sroufe, 1992).

Insecure disorganized children also tend to exhibit maladaptive social behaviors with peers. More specifically, insecure disorganization in infancy has been widely associated with substantially elevated levels of aggression in childhood (e.g., Lyons-Ruth, 1996); Lyons-Ruth and colleagues (1993) found that a vast majority (71%) of preschool children who exhibited extreme hostile behavior were classified as having an insecure disorganized attachment style.

Overall, secure children tend to have the most adaptive peer relations and enjoy many close relationships with others and high levels of peer acceptance (Elicker, Englund, & Sroufe, 1992; Thompson, 2008). They tend to be highly empathic and low in negative affect expression (LaFreniere & Sroufe, 1985; Shaver et al., 1996).

Thus, early caregiving relationships are a foundation for future peer relationships. In the proposed project, it is hypothesized that early attachment organization sets the stage for future peer relations, including bullying, victimization, and feelings and attitudes toward aggression and its victims by influencing children's anger proneness and

their social information processing. The link between insecurity and poor peer relationships or peer aggression is seen as mediated by individual differences in anger proneness and by children's biased processing of the social world. Additionally, it is hypothesized that secure children develop social information processing styles that lower the probability of aggression and foster prosocial peer behaviors.

Anger Proneness and Peer Relations

Bowlby (1973/1982) posited that children develop anger in response to frustration experienced when attachment needs are not met. These displays of anger tend to be very overt and thus likely to get a response from the caregiver; consequently, by exhibiting anger, insecure children are attempting to establish contact with and receive comfort from the caregiver. Although this approach seems functional, children who are unable to maintain or regain contact with their caregiver, as is the case with insecurely attached children, become unable to reduce their negative affect, and frustration and aggression are likely to occur (Dutton, 2011). Further, infants whose needs are not met become excessively focused on themselves; when this focus on the self is coupled with proneness to negative affect, prosocial behaviors become particularly rare (Graziano, Habashi, Sheese, & Tobin, 2007).

Although articulated within an entirely different theoretical context, the frustration hypothesis posed by Berkowitz (1990) dovetails with Bowlby's early ideas on the formation of anger as a consequence of attachment needs not being met. Berkowitz' (1983) model suggests that aggression is a reaction to a perceived frustration, and the goal of aggression is either to defend one's self or to harm another. Thus, a person who perceives a threat or believes that he or she was intentionally mistreated is likely to

experience anger and act on that anger with aggressive behavior (Berkowitz, 1983, 1989). Further, Berkowitz' (1983, 1989) cognitive-neo-associationistic model of anger formation suggests that each individual has an associative network that links specific emotions and cognitions (particularly memories and thoughts) with specific behaviors. In the model, if any one of the parts of the network becomes activated, the other components will also become activated-- if someone experiences negative affect, the associative network will engage all of the feelings, thoughts, and behaviors that are anger related. Berkowitz' ideas are included in the theoretical model (Figures 1a and 1b) as the association and pathways from early attachment relationships to anger to aggression.

Given the large literature documenting the role of anger in aggression, it is not surprising that there is a link between anger and bullying. It is well established that bullies are more anger prone (Bosworth, Espelage, & Simon, 1999; Mahady Wilton, Craig, & Pepler, 2000). As an example, for bullies, relational aggression in adolescent girls has been associated with anger proneness (particularly to perceived provocation) (Marsee & Frick, 2007). Some research has found that only bullying and not victimization has links with anger (e.g., Rieffe, Camodeca, Pouw, Lange, & Stockmann, 2012); however, other research suggests that children who exhibit a lot of anger tend to be targeted for victimization (Dodge, 1991). Wienke Totura, Green, Karver, and Gesten (2009) found that all children involved with bullying (bullies, bully/victims, controversial children) were significantly higher in anger proneness than children who were uninvolved in bullying; however, bullies showed more anger than victims. The conflicting findings may be a result of the way in which anger is expressed by bullies and victims. For example, Marsh and colleagues (2011) found that bullies were more likely to

externalize their anger whereas victims were more likely to internalize their anger. Thus, both children high in bullying or victimization have problems with anger regulation even though the underlying factors that cause anger could be different in bullies (e.g., a desire for dominance) and victims (e.g., defense strategy) (Mahady Wilton et al., 2000; Rieffe et al., 2012).

Thus, anger is prominently featured in the literature as an important individual characteristic that serves as an antecedent to aggressive acts (e.g., Berkowitz, 1990). Anger has already been addressed as a negative outcome of insecure parent-child relationships, and as a precursor to aggression, but it should be noted that anger proneness is also, in part, temperamentally based (Berkowitz, 1989; Deater-Deckard & Wang, 2012; Rothbart & Bates, 2006).

Aggression versus Bullying

It is theoretically accepted that bullying is a type of aggression. To reiterate, bullying is defined as aggression that occurs over a period of time that is intended to harm another person, and a power imbalance of bully over victim must be present (Olweus, 1993). Thus, acts like harming an animal, a random act of violence towards a person that only occurs once, or aggression that is taken out on property would be considered acts of aggression, but would not be considered bullying. Palme and Thakordas (2005) found support for an association between bullying and aggression, and concluded that, although similar, the constructs are not identical. However, even though aggression and bullying are distinct factors, children who score high in aggression are more likely to be a bully (Camodeca et al., 2002; Pepler et al., 2008; Salmivalli & Nieminen, 2002). Further, it is also the case that children who bully are at a higher risk

for deviant and criminal behavior in adolescence and adulthood (Farrington, 1993; Kumpulainen & Rasanen, 2000; Olweus, 1991). Thus, while the goal of this project is to examine the development of bullying and victimization, we also looked at the pathways to aggression as a precursor to bullying and victimization.

Social Information Processing and Peer Relations

It is important to understand the development of social processing in hopes of predicting future social difficulties in children (Crick & Dodge, 1994). Children come into social situations with innate and learned characteristics, skills, and cognitions, and each situation offers an array of cues that help them decide what is taking place and how they should behave. The very prominent Social Information Processing (SIP) theory proposes that children process social information in five steps before engaging in a given behavior (Crick & Dodge, 1994). In the reformulated model, the steps include: (1) encoding of cues, (2) interpretation of those cues, (3) clarification or selection of a goal, (4) response access or construction, (5) response decision, and (6) behavioral enactment.

Crick and Dodge (1994) delineated how at each step, the child may process social information in an adaptive and skillful manner, which would lead to social competence, or in a maladaptive manner, which would lead to aggressive behavior and social incompetence (see also Crick & Dodge, 1996). The following descriptions support the idea that aggressive children complete each step in a maladaptive way.

At Step 1 of the SIP model, children attend to external and internal cues in a situation and encode some of those cues. Children with aggressive tendencies tend to pay more attention to aggressive cues and ignore cues that do not support aggression. The interpretation of those cues occurs in Step 2. There are several processes that can take

place during social cue interpretation, including perspective taking and making attributions of intent, an analysis of the social event, an evaluation of self-efficacy and past performance in similar situations, or accessing a representation of cues from long-term memory. Each of these processes can be influenced by one's social schemata and knowledge; here, internal working models are also proposed to influence these processes. It is well established that aggressive children are more likely to have hostile intent attributions of other people's behavior than non-aggressive children (e.g., Dodge, 1985; Dodge & Frame, 1982; Steinberg & Dodge, 1983). Evidence suggests that children have biases in hostile attributions before aggression patterns emerge, but it could also be the case that the aggression strengthens or leads to increased hostile attributions (Crick & Dodge, 1994; Dodge, Bates, & Pettit, 1990).

After children interpret the situation, they choose a goal that represents the outcome they hope to achieve in the situation (e.g., making a friend; avoiding conflict) at Step 3. Goals can be internal (e.g., I want to avoid embarrassment) or external (e.g., I want to be the first in line); therefore, goals are shaped by emotions, temperament, adult influences (e.g., modeling of behavior from adults), cultural norms, and media influences (Crick & Dodge, 1994). The general idea at Step 3 is that children who are socially maladjusted tend to consider and choose goals that are not suitable for the situation. Children who form goals that enhance interpersonal relationships (e.g., sharing one's toys) are more likely to be socially competent and well-adjusted, whereas children who form goals that damage relationships (e.g., retaliation) are more likely to be maladjusted, aggressive, and rejected by peers (Renshaw & Asher, 1983; Slaby & Guerra, 1988).

At Step 4, children access or form a response for the situation. During this response construction phase, children might access a response from memory if they have experienced a similar situation before, or they might create a new response if the situation is novel. It should be noted that the response does not always match the goal selected in Step 3. When examining adaptive versus maladaptive patterns, researchers have considered the number of behavioral responses children can generate, the content of those behavioral responses, and the order in which those responses are accessed by children. When children are asked to list every possible response to a situation that they possibly recall, children who are rejected by peers can generate fewer behaviors (Asarnow & Callan, 1985; Dodge, Pettit, McClaskey, & Brown, 1986; Pettit, Dodge, & Brown, 1988), which suggests that socially rejected children have a limited selection of responses (Crick & Dodge, 1994). Rejected children are also more likely to access responses that are more aggressive, less friendly, and less prosocial than children who are not rejected (Asher, Renshaw, & Geraci, 1980; Asarnow & Callan, 1985; Dodge et al., 1986; Pettit et al., 1988; Quiggle, Garber, Panak, & Dodge, 1992). Further, the strategies chosen by rejected children to reach a certain goal are generally ineffective or poor choices, because these children do not know how to pursue goals that are positive in nature (e.g., initiate or maintain a friendship; Asher et al., 1980; Rubin, Daniels-Beirness, & Hayvren 1982). As a comparison, children who are socially well-adjusted can access or generate more behavioral responses, and the content of the responses tends to be prosocial and relevant to the situation (Dodge et al., 1986; Pettit et al., 1988).

In Step 5, children evaluate the possible responses and decide on an appropriate response. Crick and Dodge (1994) proposed that when children evaluate their options in a

social setting, they evaluate the content of each response, the likely outcomes, and the degree of confidence that they can carry out each response. During response evaluation, if a given behavior is evaluated positively (whether or not the behavior is actually positive or negative in nature), it is more likely to be carried out; thus, socially maladjusted children are more likely to carry out maladaptive behaviors because they evaluate those options as favorable. For outcome expectations, if favorable outcomes are expected, the behavior is more likely to be enacted; thus, children who believe and expect that their aggression will have favorable outcomes will be more likely to behave aggressively (Deluty, 1983; Dodge et al., 1986; Quiggle et al., 1992). Further, some research suggests that aggressive children do not expect positive outcomes for adaptive and prosocial behaviors, so maladaptive behaviors are often chosen over positive behaviors (Crick & Dodge, 1994; Dodge et al., 1986; Quiggle et al., 1992). Finally, the model suggests that children will only choose a behavior if they feel confident that they can carry it out (Crick & Dodge, 1994). Thus, socially incompetent children face multiple problems at this stage, including lacking confidence that they can carry out positive acts and over-confidence that they can act aggressively (Quiggle et al., 1992; Wheeler & Ladd, 1982).

Finally, at Step 6, they act on the response (Crick & Dodge, 1994). At each step of the SIP model, socially maladjusted children have biases that lead them down a maladaptive path; thus, it is not surprising that they choose to enact behaviors that are in line with their aggressive, maladaptive cognitions. Such children are more likely to choose behaviors that are aggressive and less friendly (Ladd & Oden, 1979; Mize & Ladd, 1988; Pettit, Dodge, & Brown, 1988; Slaby & Guerra, 1988). SIP and related

research suggests that the chosen behaviors tend to be maladaptive because they are rated more favorably (Crick & Dodge, 1994). Their model shows Steps 1 through 6 in a cyclical structure, with feedback loops, because Crick and Dodge (1994) acknowledged that individuals are always involved in encoding and interpreting cues and accessing or developing responses.

Both bullies and victims show problems in processing and acting on social information in every step of the SIP model. Camodeca and Goossens (2005) found that bullies and victims were more likely to make hostile attributions of others' intentions than children who were not bullies or victims. Further, bullies and victims reported that they would be angrier than other children in response to others' actions. The consequence of making hostile attributions early on in the SIP framework is that the negativity carries on in each step of the cycle suggested by Crick and Dodge (1994). Additionally, as the process is cyclical in nature, bullies and victims have repeated exposure to the same thoughts, goals, emotions, and behaviors, which solidify maladaptive pathways.

Crick and Dodge (1994) suggested that emotion should be considered within their model. For example, at Step 1, the child's emotional arousal could serve as an internal cue. At Step 2, emotions could influence the interpretation of cues and the interpretation could also influence affect. At Step 3, emotions could affect one's motivation to formulate certain goals over others. At Step 4, emotions could affect the types of responses that are easily accessed, and at Step 5, one's outcome expectations could involve predicting one's own emotional reaction to the situation.

Although Crick and Dodge (1994) suggested that emotion was involved in each step of their model, they did not explicitly include emotion in any of the steps.

Consequently, Lemerise and Arsenio (2000) enhanced the SIP model by including emotions, along with cognitions, into each step of the model. In their model, they suggested that various steps of the SIP model could be processed differently if one is angry, unable to control their emotions, and has poor experiences with close relationships.

Dovetailing with Lemerise and Arsenio's (2000) work, and in line with modern theory that suggests that investigations into problem behaviors and psychopathology should always consider the integration of cognition and emotion (e.g., Nigg, Martel, Nikolas, & Casey, 2010), it is proposed that each step of the SIP model is influenced by anger that stems from insecure attachment relationships; children who develop internal working models of others as unreliable, inconsistent, and untrustworthy develop more anger and consequently use these internal working models as a framework that biases all future social information processing. Thus, what starts as a poor relationship with caregivers turns into a cycle of negative interactions with others. This view dovetails with the finding that children who experienced harm in the context of early caregiving developed biased and deficient patterns of processing social information, including a failure to attend to relevant cues, a bias to attribute hostile intentions to others, and a lack of competent behavioral strategies to solve interpersonal problems. These patterns of SIP, in turn, predicted the development of aggressive behavior (Dodge et al., 1990).

In terms of attitudes (another form of social cognition) and bullying, several lines of research have found associations between anti-bullying attitudes and low participation in bullying behavior (Boulton, Bucci, & Hawker, 1999; Salmivalli & Voeten, 2004). Thus, it is hypothesized that secure children, who consequently develop adaptive social

information processing skills, also develop prosocial skills (i.e., anti-bullying attitudes and empathy) that inhibit bullying behavior.

Current Project

Social cognitions are important because they are among the key mechanisms that regulate behavior in social situations (Ladd & Mize, 1983). Children use schemata to help interpret the various cues they encounter in social situations (Crick & Dodge, 1994). Theories that emphasize SIP and those that focus on attachment and internal working models (IWM) of social relationships all stress that social strategies are in part the result of past experiences, memories, and future expectations grounded in those experiences.

When such social strategies are aggressive in nature, attachment theory and Berkowitz' frustration hypothesis both suggest that poor social experiences can be the driving force behind anger and aggression. Although Berkowitz (1990) claimed that interpersonal relationships cause anger in everyday life, his model does not address the kinds of relationships that lead to anger. Attachment theory, however, does specify that early insecure relationships, which are inconsistent, unreliable, and lack warmth, are likely to lead to anger and set in motion the negative pathways to aggression (DeKlyen & Greenberg, 2008; Thompson, 2008).

The following study examined two theories of aggression (Berkowitz' frustration-aggression theory and Dodge's SIP approach) along with attachment theory in a comprehensive and integrative model of the pathways to bullying and adaptive approaches to aggression. Historically, Berkowitz' and Dodge's approaches have been considered separate and unique ways to examine aggression, but this proposed model of aggression integrates both lines of research. Berkowitz (1990) stated that negative affect,

and anger-infused cognitions come to affect one's judgments of others in social situations, which is in line with the SIP model of maladaptive patterns of cognition developed by Crick and Dodge (1994). Attachment relationships with mothers and fathers will be added into the model to elucidate the origin of negative affect (if high in insecurity) that has been shown in the literature to lead to anger, biased IWMs and social cognition, and ultimately, aggression and bullying.

Given the normative character of the sample, it is expected that levels of bullying behaviors in this study will be relatively low. Further, prevalence rates for bullying tend to show that only a small number of children are bullies at any given time. It should be noted that researchers who investigate bullying behavior often call those high on bullying behaviors "bullies" and those high on victimization "victims", even if children do not fall into a given category by a cutoff score. We used *continuous* measures of aggression, bullying, and victimization to permit sensitive scores.

This project used a combination of archival data from a larger project (so called "the Family Study") and new data from the same sample of mothers, fathers, and children who have been followed for the past twelve years in the Family Study

It was predicted that children's early attachment organization would be linked to the qualities of their social information processing and to their anger proneness. More specifically, insecurity in attachment relationships with mothers and fathers was predicted to be linked to aggressive biases in social information processing and to higher anger proneness. Anger proneness was hypothesized to be associated with maladaptive social information processing (assessed in a step-like fashion using hypothetical vignettes). Both anger proneness and maladaptive social information processing were

predicted to lead to parent-reported aggression, which in turn was expected to predict both bullying behavior and victimization. Lastly, for the models that shows the pathways to adaptive anti-bullying attitudes and sympathy for victims, attachment security was predicted to promote positive social information processing and lower anger proneness, both of which in turn were predicted to be associated with sympathy and anti-bullying attitudes.

To our knowledge, this is the first attempt to explain pathways to bullying and peer victimization that integrates three well-established bodies of research – on attachment, on anger, and on social cognition – within a comprehensive, developmentally-informed longitudinal design. Furthermore, a multi-method multi-trait approach allows us to create robust constructs and to elucidate processes at several levels.

CHAPTER II

METHOD

Participants

Two-parent families responded to advertisements for a longitudinal study placed around small towns, a small city, and rural areas that surrounded a college town in the Midwest. In 20% of the families, one or both of the parents were non-White. Among mothers, 90% classified themselves as European American, 3% as Latin American, 2% as African American, 1% as Asian American, 1% as Pacific Islander, and 3% as other non-White. Among fathers, 84% were European American, 8% Latin American, 3% African American, 3% Asian American, and 2% other non-White. A wide range of education and income was reported by the families. The data in this study came from assessments when children were 15 months (N = 102, 51 girls), 6.5 years (N = 90, 43 girls), 8 years (N = 87, 41 girls), 10 years (N = 82, 36 girls), and 11.5 years (N=71, 36 girls) (Table 1).

Procedure

Two- to three-hour sessions were conducted in the laboratory by female experimenters. There were two laboratory sessions, one with each parent, at 15 months and 6.5, 8, and 10 years. All sessions were videotaped for future coding. For the bullying and victimization data at 11.5 years, children were invited to complete three measures by mail, phone, or online questionnaire (64 children completed a hard copy; 7 children completed the online version). Variables were substantially aggregated across coded segments, contexts, and assessments. Aggregation is known to yield robust constructs in general (Rushton, Brainerd, & Pressley, 1983) and, with regard to child traits, to improve

agreement between parents and observers (Forman, O'Hara, Larsen, Coy, Gorman, & Stuart, 2003).

Measures

Attachment, 15 months. The Strange Situation (Ainsworth & Wittig, 1969; Ainsworth, Blehar, Waters, & Wall, 1978) is a well-validated and very carefully scripted behavioral assessment of children's attachment to mothers and fathers, considered "the gold standard" in attachment research. In the classic procedure, the child is separated and reunited from their caregiver on two occasions. A stranger is present at various points during the episode. The Strange Situation paradigms were videotaped and coded by two

Table 1
Constructs and ages of assessment

Construct	Age of Children				
	15 months	6.5 years	8 years	10 years	11.5 years
Attachment to M and F	X				
Anger		X			
Social Information Processing			X		
Parent-Reported Aggression				X	
Bullying					X
Victimization					X
Anti-Bullying Attitudes					X
Sympathy for Victims					X

M=Mother F=Father

separate professional attachment coders at another institution. Coders rated the child's behavior and assessed four social-interactive codes (proximity-contact seeking, contact maintaining, contact resistance, and avoidance) and distress. Reliability, alphas, were above .90. Based on these behaviors, children were categorized into one of four classifications: *avoidant* (A), *secure* (B), *resistant* (C), and *disorganized–unclassifiable* (D-U) (inter-rater reliability for categorical classifications, .78). All D-U cases and cases coded with low confidence were double-coded and adjudicated.

Continuous security scores (secure vs. non-secure) were also generated based on the child's social-interactive behaviors and distress during reunions. Following the widely accepted formula proposed by Richters, Waters, and Vaughn (1988), social-interactive behavior and distress scores were each standardized, multiplied by the respective weights, summed, and reversed with the final security scores as follows: for mothers, M= -.01, SD =1.16, and for fathers, M= .02, SD =1.20. Higher scores reflect more secure attachments. The continuous security scores were used in all analyses described below.

Anger, 6.5 years. Well-validated LAB-TAB paradigms (Goldsmith & Rothbart, 1999) were used to elicit children's anger (vocal, facial, and body). In one paradigm, Unfair Candy Reward, the experimenter and child were asked by the experimenter's "friend" to take turns finding hidden objects in a drawing. The friend told both the experimenter and the child that every time they found a hidden object, they were to be rewarded with an M&M from a container on the table. However, every time the child attempted to get an M&M after circling a hidden object, the experimenter thwarted the attempt (e.g., lightly pushed the child's hand away, said "Oh, it's my turn"). Unfair

Candy Reward was coded for up to 120 s (length of episode varied by how long it took the experimenter and child to find all of the missing objects).

In the other paradigm, Impossible Puzzle, the experimenter presented the child with puzzle pieces and a picture of the completed puzzle. The pieces of the puzzle were rigged to not fit with each other. She then asked the child to complete the puzzle, emphasizing that most children get the puzzle done very quickly. Impossible Puzzle was coded for 120 s, after which the experimenter "admitted" that she had given the child the wrong pieces.

Coding and data aggregation. For both anger episodes, coders rated discrete expressions of anger for every 5-sec segment. Facial/body anger, vocal anger, and anger explicitly directed toward the experimenter (e.g., grimacing, making fists, giving the experimenter "dirty looks", furrowing eyebrows, yelling) totals were combined with latencies of the first expression of anger and the peak intensity global anger scores (0 [no anger expressed] to 3 [anger expressed in all modalities]) to form standardized aggregates of anger proneness (inter-rater reliability: kappas range .71 – 1.00, ICC for latency variables range .71 - 1.00). Multiple coding teams used at least 20% of cases for reliability and frequently "realigned" to prevent drift. The aggregated Unfair Candy Reward and aggregated Impossible Puzzle scores were correlated ($r[85] = .23$, $p \leq .05$) and combined into one overall behavioral anger score for each child.

Social Information Processing, 8 years. Children watched eight video vignettes (with a protagonist matching the child's gender) that were ambiguous, hostile, or accidental in nature (see Dodge & Price, 1994). We chose to focus on the ambiguous vignettes for this project (3 stories), given Dodge's claim that maladaptive SIP,

characteristic of aggressive children, is most clearly (and perhaps only) seen in ambiguous situations (Dodge & Crick, 1990). As an example, an ambiguous vignette showed a child building a tower with blocks right by a closed door. Another child opened the door to enter the room and the tower was knocked down.

After each vignette was shown, the participants were asked to describe what happened in the story and were asked if the provocateur(s) were "being mean" or "not mean". A hostile attribution, "being mean," was given a score of 2 and a benign attribution, "not mean," was given a score of 1. This score, Hostile Intent Attribution, was a sum of scores from the three vignettes, representing a range from 3 to 6.

Next, children were asked what they would do in the situation. Their responses were coded into one of thirteen mutually exclusive categories (children received a 0 if they did not mention a category and a 1 if the category was present; interrater reliability, kappa = .82). If children gave two responses (e.g., "I would hit that child and then I would cry" – indicating an aggressive response first and an ineffective response second), the child would be given a score of 1 for both categories. Note, however, that most children only gave one response, and a second response was rare. Coding teams used at least 20% of cases for reliability and frequently "realigned" to prevent drift. Three of these categories were used in the following analyses, Aggressive Response Generation, Ineffective Response Generation, and Prosocial Response Generation. Each child's scores could fall between a range of 0 to 6 in each of these categories.

Finally, children were shown three possible responses to each vignette: one response was competent, one was aggressive, and one was considered inept (usually the target child would cry in reaction to the other children's behavior). The participants were

asked if each response was a good or bad thing (1 “Bad” to 4 “Good” scale). Three scores were created at this SIP step, Endorsement of Aggressive Response, Endorsement of Inept Response, and Endorsement of Competent Response. Each child could have a range of scores of 3 to 12 for each Endorsement category, with higher scores reflecting more endorsement of a certain type of behavior (e.g., aggressive).

The constructs established here represent Step 2 (Hostile Intent Attribution), Step 4 (e.g., Competent Response Generation), and Step 5 (e.g., Endorsement of Aggressive Response) of the SIP model.

Aggression, 10 years. Mothers and fathers completed MacArthur’s Health Behavior Questionnaire (Boyce et al., 2002; Essex et al., 2002). The Overt Hostility subscale was retained for this project, and includes items on a 1 “Never/Not true” to 3 “Often/Very True” scale. Item examples include “Gets in many fights” and “Taunts and teases other children”. The four items were aggregated into an Overt Hostility score for mothers (α = .54) and one for fathers (α = .58). The two scores were correlated (r[77] = .58, $p \leq .000$), and were consequently averaged into one overall score for each child (α = .73).

Bullying and Victimization, 11.5 years. Children were asked to complete the Olweus Bullying Questionnaire (OBQ; Olweus, 1996) by filling in a hard copy, online, or in a phone interview. The measure contains 42 questions designed for children between the ages of 8 and 18. Nine of those questions did not pertain to any of the research questions examined here and were removed for brevity. Children were asked about the frequency in which various forms of bullying and victimization have occurred within the last couple of months, with separate victim items (11 questions; e.g., “How often have

you been bullied at school in the past couple of months") and bullying items (11 questions; e.g., "How often have you taken part in bullying another student(s) at school in the past couple of months"). Responses range from 0 "*It has not happened to me in the past couple of months*" to 4 "*Several times a week*". The OBQ has shown to have good construct validity and reliability (Kyriakides, Kaloyirou, & Lindsay, 2006). The revised version of the OBQ has been used around the world, usually as part of the Olweus Bullying Prevention Program; over one million students worldwide have completed the OBQ. The OBQ is generally used as a continuous measure of bullying and victimization, although cutoff scores can also be computed to distinguish bullies from non-bullies and victims from non-victims (Solberg & Olweus, 2003). For this project, continuous scores were used, because it was not expected that many children in our study would reach cutoff score levels of bullying or victimization. Further, it should be noted that each child has a bullying score and a victimization score; it is theoretically plausible, and often evidenced in the literature, that a child could have high scores in both bullying and victimization (or low scores in both).

Anti-Bullying Attitudes and Emotions, 11.5 years

The Peer Sympathy Scale (PSS; MacEvoy & Leff, 2012; see Appendix A for items). To examine an additional angle on bullying and victimization, the PSS was collected from children. The PSS has 15 items (including 3 filler items) that are designed to assess how bad children would feel if one of their same-sex peers was the target of aggression (scores range from 0 "Not bad at all" to 4 "Really bad"). Different types of aggression are examined within the items; however, no items directly related to cyber bullying. An additional item, "How bad would you feel for another kid if some kids sent

him/her a mean text message or email?" was also assessed. Items were averaged to form one continuous sympathy score (α = .91).

Attitudes towards Bullying scale (ATB; Salmivalli & Voeten, 2004; see Appendix B for all items). Children's attitudes towards bullying behavior were assessed via the ATB scale. The scale contains 10 items (e.g., "It is funny when someone ridicules a classmate over and over again.") rated on a scale from 0 to 4. Each item has different qualitative endpoints to make item interpretation easier for children. One item was dropped based on the results of a confirmatory factor analysis recently reported by Pozzoli, Gini, and Vieno (2012). An aggregate was created by averaging the nine items on the modified ATB (α = .64). Note that some items are reverse-coded such that higher scores on the ATB reveal stronger anti-bullying attitudes or the repudiation of bullying.

CHAPTER III

RESULTS

Overview

Data analysis was completed in four steps. First, descriptive statistics and correlations among the measures were examined (Tables 2 through 4). Second, gender differences were examined with t-tests. Third, a series of path analyses were completed, and the fit statistics were examined to evaluate if each model fit the data well. All models were analyzed using M-Plus 4.0 (Muthén & Muthén, 2006). Fourth, exploratory regression analyses were completed to gain a better understanding of the relations among the variables examined within the path analyses.

Descriptive Statistics

Among the children in our study, 78.9% reported that they never bullied, 19.7% reported minimal bullying (scores of 1 to 4 out of a possible 44), and only one child (1.4%) reported moderate bullying behavior (score of 11). For victimization, 52.1% reported no victimization, 35.2% reported minimal victimization (scores of 1 to 5 out of a possible 44), 8.4% reported moderate victimization (scores of 6 to 11), and three children reported more extensive victimization (4.2%; scores of 18, 23, and 30). Thus, as expected, the children in our study were generally well-functioning, at least in terms of bullying behavior, but there was still considerable variability in victimization.

The frequencies of responses were also gathered for the SIP variables. For Hostile Intent Attribution, scores could range from 3 (indicative of no hostile intent attributions) to 6 (indicative of hostile intent attributions always given). The full range was seen, with most children (47.7%) having a score of 5 (2.3% had score of 3; 24.4% had score of 4;

Table 2

Means, standard deviations, and cell sizes for all variables included in path analyses

	N	*Mean (SD)*	*Range*
Security to Mother	100	-.01 (1.16)	-2.56 – 2.43
Security to Father	99	.02 (1.20)	-3.39 – 2.21
Anger	89	-.00 (.79)	-1.89 – 1.88
Parent-Reported Aggression	82	.02 (.91)	-.93 – 4.10
Bullying	71	.59 (1.58)	0 – 11
Victimization	71	2.66 (5.29)	0 – 30
Anti-Bullying Attitudes	71	3.76 (.30)	2.78 – 4.00
Sympathy towards Victims	71	3.35 (.49)	1.85 – 4.00
Social Information Processing Variables			
Hostile Intent Attribution	86	4.97 (.77)	3 – 6
Aggressive Response Generation	86	.02 (.15)	0 – 1
Ineffective Response Generation	86	1.40 (.96)	0 – 4
Prosocial Response Generation	86	.24 (.48)	0 – 2
Endorsement of Aggressive Response	86	3.43 (.80)	3 – 8
Endorsement of Inept Response	86	5.66 (1.08)	4 – 9
Endorsement of Competent Response	86	10.37(1.25)	6 – 12

Note: Attachment security, anger, and aggression are aggregates of standardized variables. Means, standard deviations, and ranges for the remaining variables are not standardized and represent real scores.

25.6% had a score of 6). For Aggressive Response Generation, only two children out of 86 (2.3%) reported an aggressive response and the rest of the children received a score of 0; thus, this variable will not be investigated further. For Prosocial Response Generation, scores could range from 0 to 6; 77.9% of children did not provide a prosocial response, 19.8% reported one prosocial response, and 2.3% of children reported two prosocial responses across the three vignettes. For Ineffective Response Generation, scores could range from 0 to 6; 18.6% of children did not give an ineffective response, 37.2% of children gave 1 ineffective response, 31.4% gave 2 ineffective responses, 11.6% gave 3 ineffective responses, and 1.2% of children gave 4 ineffective responses. Scores for the endorsement SIP variables (Endorsement of Aggressive Response, Endorsement of Competent Response, and Endorsement of Inept Response) could range from 4 to 12. For Endorsement of Aggressive Response, the exhibited range was 3 to 8 with most children having a score of either 3 (69.8%) or 4 (20.9%); thus, most children did not believe that an aggressive response was the right thing to do. For Endorsement of Competent Response, the exhibited range was 6 to 12 with most children either having a score of 10 (30.2%), 11 (29.1%), or 12 (19.8%); thus, most children thought that the competent responses given were a good thing to do. Lastly, for Endorsement of Inept Response, the exhibited range was 4 to 9 with most children giving a score of 6 (40.7%) or 5 (29.1%).

Correlations among the Measures

As seen in Table 3, security to mother was only associated with security to fathers. Security to fathers, on the other hand, was associated with one SIP variable – Hostile Intent Attribution – and marginally associated with anger. Anger was associated with two SIP variables – Hostile Intent Attribution and Endorsement of Aggressive

Table 3

Intercorrelations among variables of interest (top) and correlations between social information processing variables and all other variables (bottom)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Security to M	--							
2. Security to F	.29**	--						
3. Anger	-.13	-.19+	--					
4. Aggression	.12	-.13	.16	--				
5. Bullying	.10	.17	.04	.34**	--			
6. Victimization	-.07	-.00	.15	.15	.30*	--		
7. Anti-Bullying Attitudes	.11	-.10	-.17	-.01	.01	-.13	--	
8. Sympathy towards Victims	.05	-.17	.04	.01	-.24*	-.04	.16	--
Hostile Intent Attribution	.06	.30**	-.26*	-.27*	-.06	-.05	-.12	-.29*
Ineffective Response Generation	-.02	-.14	.05	.00	-.16	-.03	.05	-.08
Prosocial Response Generation	-.11	-.06	.06	-.14	-.13	.07	.19	.12
Endorsement of Aggressive Response	-.14	-.01	.24*	.05	-.20+	-.17	-.13	.11
Endorsement of Inept Response	.05	.04	.06	.08	-.08	-.18	.08	.09
Endorsement of Competent Response	-.18+	.08	.04	-.09	-.00	-.02	.06	.10

+ $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; Note: M=Mother, F=Father

Response. Parent-reported aggression was associated with bullying behavior and Hostile Intent Attribution. Bullying, unsurprisingly, was associated with victimization, and also negatively correlated with sympathy towards victims. Lastly, sympathy towards victims was also associated with Hostile Intent Attribution. Besides its link with bullying, victimization was not linked with any other variable of interest. Thus, associations among the variables were present, and only one SIP variable – Hostile Intent Attribution - showed significant associations with many of the other constructs.

Sympathy towards victims and anti-bullying attitudes were not correlated. Consequently, they were not examined as two indicators of a latent variable of (e.g., Prosocial Approach to Aggression), but rather as two separate constructs.

As seen in Table 4, of the possible 15 associations among SIP variables, only two correlations were significant. Children who made more hostile intent attributions were less likely to generate ineffective responses to interactions. Additionally, children who endorsed aggressive responses were less likely to endorse competent responses, unsurprisingly. Given that social information processing is considered a *pattern* of thinking and processing (Coie & Dodge, 1998), it is surprising that more associations did not emerge. However, within the SIP literature, each step of the SIP model is examined separately. It is rarely the case that the separate SIP steps are aggregated or combined in a latent variable (e.g., Dodge, 1993; Dodge, Pettit, Bates, & Valente, 1995; Ziv, Oppenheim, & Sagi-Schwartz, 2004). Further, Dodge, Laird, Lochman, and Zelli (2002), using confirmatory factor analyses, found support for a multidimensional model of SIP – the steps in SIP represent distinct mental processes. Thus, the fact that very few of the SIP variables were correlated is not inconsistent with the extant literature.

Table 4

Correlations among the social information processing variables

	1.	2.	3.	4.	5.
1. Hostile Intent Attribution	--				
2. Ineffective Response Generation	-.36**	--			
3. Prosocial Response Generation	-.10	-.16	--		
4. Endorsement of Aggressive Response	-.07	-.04	-.00	--	
5. Endorsement of Inept Response	-.01	-.11	.05	.01	--
6. Endorsement of Competent Response	.18	-.14	.00	-.30**	.15

+ $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Gender Differences

Only a few significant gender differences emerged. Boys reported more Hostile Intent Attributions than girls ($t[84] = -2.17$, $p \leq .05$; boys: $M = .21$, $SD = 1.01$; girls: $M = -.25$, $SD = .95$) while girls generated more prosocial responses than boys ($t[84] = 2.41$, $p \leq .05$; boys: $M = -.24$, $SD = .83$; girls: $M = .27$, $SD = 1.12$) and parents reported boys as showing more overt aggression, $t(80) = -2.78$, $p \leq .01$ (boys: $M = .26$, $SD = 1.04$; girls: $M = -.28$, $SD = .62$). Boys and girls did not differ on any of the remaining social information processing variables, attachment security with mothers or with fathers, on anger scores, or in bullying, victimization, anti-bullying attitudes, or sympathy for victims. Thus, gender was covaried in the path analyses described below with paths to SIP and parent-reported aggression.

Path Analyses for Bullying/Victimization

There were 12 path analyses (6 for the mother-child relationship and 6 for the father-child relationship) that examined pathways to bullying and victimization. A

bootstrap approach was used to test the pathways; such an approach maximizes power and minimizes Type I error and is especially useful with a small sample size (Shrout & Bolger, 2002). The model was estimated based on maximum likelihood estimation and 1,000 bootstrap draws.

All path analyses followed the pattern depicted in Figure 1a– the SIP variable and security to parent changed within each analysis. To reiterate, the SIP variables of interest were Hostile Intent Attribution, Ineffective Response Generation, Prosocial Response Generation, Endorsement of Aggressive Response, Endorsement of Inept Response, and Endorsement of Competent Response. All SIP variables were standardized prior to analyses.

Security to mother predicting bullying and victimization. Five out of the six models showed good global fit (Table 5). Overall, this suggests that the models fit the data well – attachment security to mothers sets off a developmental cascade to bullying and victimization through anger, social information processing, and parent-reported aggression. However, when the models' component fits were examined, the complete picture became less clear.

All values that follow are unstandardized. A pictorial representation of findings within the mother-child relationship can be found in Figure 2. The model that examined Prosocial Response Generation did not converge; thus, it was not possible to examine global or component fit (Note: For boys, little variability was found for Prosocial Response Generation – only five responses were prosocial. For girls, fourteen responses were prosocial).

Table 5

Fit statistics for models predicting bullying and victimization (top) and anti-bullying attitudes and sympathy for victims (bottom) within the mother-child relationship.

Predicting Bullying and Victimization (*df*=10)

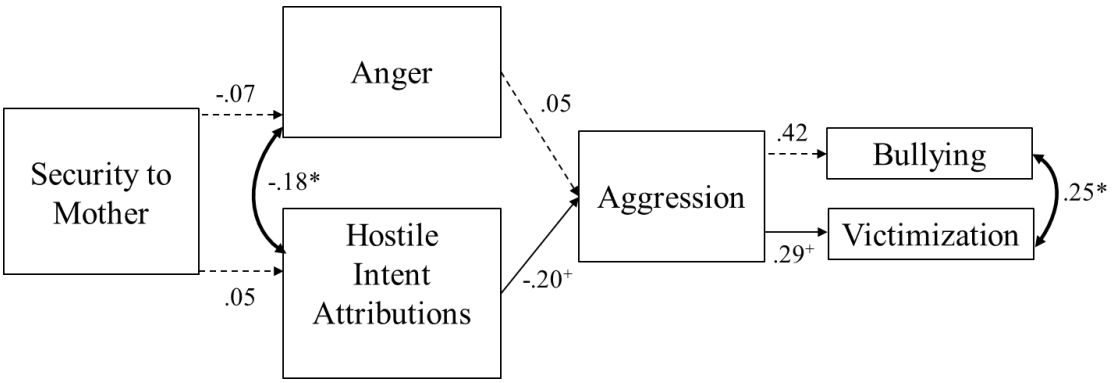
SIP Variable	χ^2	*p*	CFI	TLI	RMSEA	SRMR	AIC	R^2 Bullying	R^2 Victimization
Hostile Intent Attribution	5.18	.88	1.00	1.78	.00	.04	1029.16	.11	.05
Ineffective Response Generation	7.13	.71	1.00	1.79	.00	.05	1035.32	.11	.05
Prosocial Response Generation	No Convergence								
Endorsement of Aggressive Response	8.25	.60	1.00	1.29	.00	.06	1033.48	.11	.05
Endorsement of Inept Response	8.46	.58	1.00	1.50	.00	.06	1039.82	.11	.05
Endorsement of Competent Response	4.61	.92	1.00	2.94	.00	.04	1036.63	.11	.05

Predicting Anti-Bullying Attitudes and Sympathy for Victims (*df*=5)

SIP Variable	χ^2	*p*	CFI	TLI	RMSEA	SRMR	AIC	R^2 Anti-Bully Attitudes	R^2 Sympathy for Victims
Hostile Intent Attribution	4.08	.54	1.00	1.35	.00	.05	842.05	.05	.08
Ineffective Response Generation	5.82	.32	.00	-2.24	.04	.06	849.48	.03	.01
Prosocial Response Generation	No Convergence								
Endorsement of Aggressive Response	5.71	.34	.88	.66	.04	.06	845.93	.06	.02
Endorsement of Inept Response	5.04	.41	.00	1.00	.01	.06	853.57	.05	.01
Endorsement of Competent Response	6.66	.25	.00	-2.08	.06	.06	851.61	.04	.01

NOTE: Gray shading indicates good global fit; CFI: acceptable fit ≥ .95; TLI: acceptable fit ≥ .95; RMSEA: acceptable fit ≤ .08; SRMR: acceptable fit ≤ .08

a



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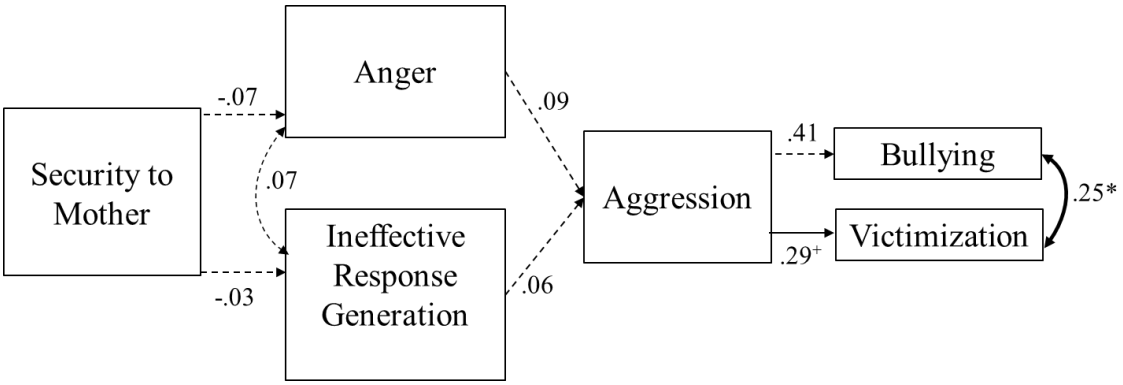

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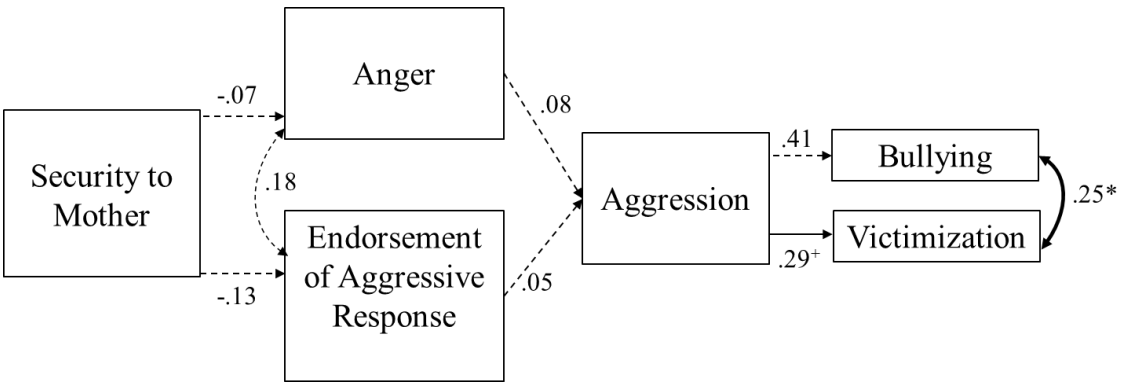

Figure 2. Mother-child relationship: Pathways to bullying and victimization. Bold lines represent significant path coefficients; solid lines represent marginally significant path coefficients; dashed lines represent insignificant path coefficients.

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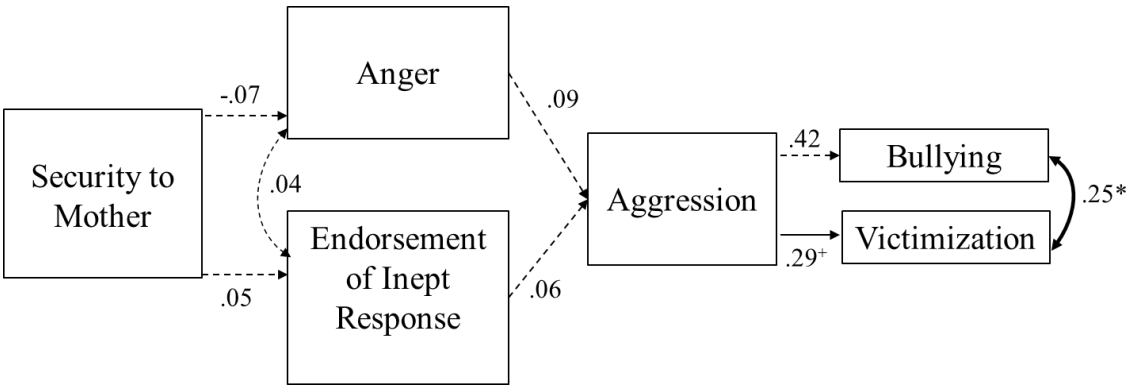

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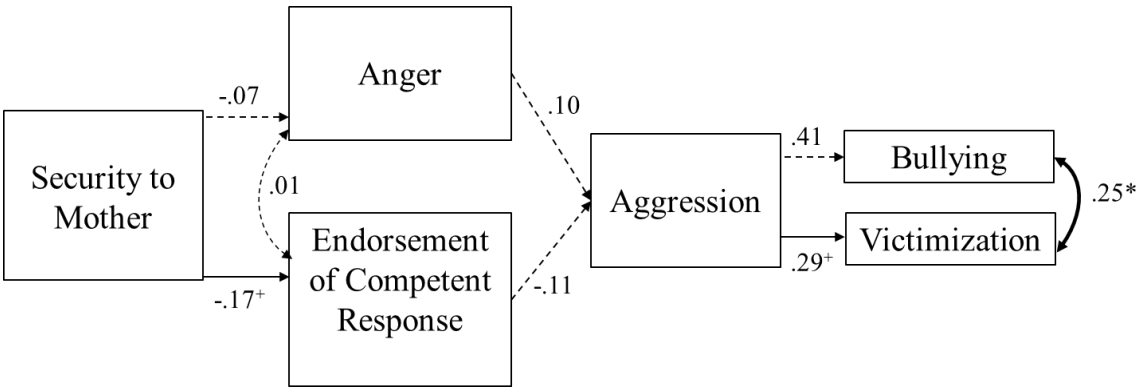

Figure 2 (continued). Mother-child relationship: Pathways to bullying and victimization. Bold lines represent significant path coefficients; solid lines represent marginally significant path coefficients; dashed lines represent insignificant path coefficients.

Hostile Intent Attribution. In the model that examined Hostile Intent Attribution (Figure 2a), Hostile Intent Attribution and child sex marginally predicted parent-reported aggression, B = -.20, SE = .10, 95% CI [-.42, -.00], $p \leq .10$ and B = -.13, SE = .08, 95% CI [-.28, .02], $p \leq .10$, respectively. Note, however, that the link between Hostile Intent Attribution and parent-reported aggression was not in the expected direction; in this case, children who attributed *more hostile intent* in ambiguous situations scored *lower in*

parent-reported aggression. Parent-reported aggression was marginally associated with victimization, *B* =.29, *SE* = .17, 95% CI [.05, .68], $p \leq .08$. Anger was associated with Hostile Intent Attribution (*B* = -.18, *SE* = .08, 95% CI [-.35, -.03], $p \leq .05$). Again, however, this association was in the opposite direction from what would be expected, with *more anger-prone children* producing *fewer hostile attributions*. Finally, victimization and bullying behavior were also associated, *B* =.25, *SE* = .13, 95% CI [.06, .55], $p \leq .05$, as predicted. Security to mothers did not predict either anger or Hostile Intent Attribution.

***Ineffective Response Generation*.** In the model that examined Ineffective Response Generation (Figure 2b), child sex was marginally associated with Ineffective Response Generation, *B* = -.18, *SE* = .09, 95% CI [-.37, .02], $p \leq .06$. Parent-reported aggression was marginally associated with victimization, *B* = .29, *SE* = .17, 95% CI [.05, .69], $p \leq .10$. Lastly, as predicted, victimization and bullying behavior were associated, *B* =.25, *SE* = .13, 95% CI [.06, .55], $p \leq .05$. Security to mothers did not predict either anger or Ineffective Response Generation.

***Endorsement of Aggressive Response*.** In the model that examined Endorsement of Aggressive Response (Figure 2c), only one pathway was marginally significant: Parent-reported aggression was associated with victimization, *B* = .29, *SE* = .17, 95% CI [.05, .69], $p \leq .10$. The association between victimization and bullying was still found, *B* =.25, *SE* = .13, 95% CI [.06, .56], $p \leq .05$. Security to mothers did not predict either anger or Endorsement of Aggressive Response.

Endorsement of Inept Response. In the model that examined Endorsement of Inept Response (Figure 2d), only one pathway was marginally significant: Parent-

reported aggression was associated with victimization, B = .29, SE = .17, 95% CI [.05, .68], $p \leq .10$. As predicted, an association between victimization and bullying was found, B =.25, SE = .13, 95% CI [.06, .55], $p \leq .05$. Security to mothers did not predict either anger or Endorsement of Inept Response.

Endorsement of Competent Response. In the model that examined Endorsement of Competent Response (Figure 2e), security to mothers was marginally associated with Endorsement of Competent Response, B = -.17, SE = .10, 95% CI [-.36, .01], $p \leq .10$. This finding was in an unexpected direction: Children who were *more securely attached* to their mothers were *less likely to endorse a competent response*. Parent-reported aggression was marginally associated with victimization, B = .29, SE = .17, 95% CI [.05, .68], $p \leq .10$. An association between victimization and bullying was also found, B =.25, SE = .13, 95% CI [.06, .55], $p \leq .05$.

Summary of the findings in mother-child relationship models. Across five models, a pattern of results emerged (albeit not the pattern we had expected to see). With the exception of one model, which was a marginal finding, security to mothers did not predict anger or SIP. Anger did not predict parent-reported aggression in any of the models. One SIP variable predicted parent-reported aggression; however, this association was a marginal finding. In all of the models, there was a marginal link between parent-reported aggression and victimization and a significant association between bullying and victimization. Thus, the front ends of the models were not supported, but the tail end suggests that bullies are indeed more likely to be victims. Additionally, the consistent pathway from parent-reported aggression to victimization could suggest that aggressing on others has direct consequences for one's own victimization.

Security to father predicting bullying and victimization. Three out of the six models showed good global fit (Table 6). One model, Prosocial Response Generation, did not converge and the interpretation of fit did not take place. Two other models, Endorsement of Aggressive Response and Endorsement of Inept Response, showed poor global fit and component fit was not examined.

Similarly to the models that examined security to mothers, many of the models do fit the data well – attachment security to fathers sets off a developmental cascade to bullying and victimization through anger, social information processing, and parent-reported aggression. However, when the models' component fits were examined, the complete picture becomes less clear. A pictorial representation of findings within the father-child relationship can be found in Figure 3.

Hostile Intent Attribution. In the model that examined Hostile Intent Attribution (Figure 4a), security to fathers significantly predicted Hostile Intent Attribution, B =.24, SE = .08, 95% CI [.08, .38], $p \leq .01$; however, it should be noted that this is in the opposite direction of what would be expected. Children who were *more securely attached to their fathers* were *more likely to interpret cues as aggressive*. Hostile Intent Attribution, in turn, significantly predicted parent-reported aggression, B = -.24, SE = .11, 95% CI [-.47, -.05], $p \leq .05$; again, however, this is the opposite direction – children who *interpreted cues as hostile* were *less likely to be reported as aggressive* (or, children who are less likely to interpret cues as aggressive are more likely to be reported as exhibiting aggression). Children's sex also had a marginal effect on parent-reported aggression, B = -.16, SE = .08, 95% CI [-.34, -.02], $p \leq .10$. As predicted, parent-reported aggression was marginally associated with bullying, B =.40, SE = .22, 95% CI [.10, 1.05], $p \leq .08$. Anger

Table 6

Fit statistics for models predicting bullying and victimization (top) and anti-bullying attitudes and sympathy for victims (bottom) within the father-child relationship.

Predicting Bullying and Victimization (*df*=10)

SIP Variable	χ^2	*p*	CFI	TLI	RMSEA	SRMR	AIC	R^2 Bullying	R^2 Victimization
Hostile Intent Attribution	7.13	.71	1.00	1.23	.00	.05	1033.93	.13	.02
Ineffective Response Generation	9.23	.51	1.00	1.11	.00	.05	1052.06	.13	.02
Prosocial Response Generation	No Convergence								
Endorsement of Aggressive Response	12.05	.28	.89	.77	.05	.07	1052.90	.13	.02
Endorsement of Inept Response	11.71	.30	.88	.76	.05	.06	1055.27	.13	.02
Endorsement of Competent Response	7.72	.66	1.00	1.46	.00	.05	1057.30	.13	.02

Predicting Anti-Bullying Attitudes and Sympathy for Victims (*df*=5)

SIP Variable	χ^2	*p*	CFI	TLI	RMSEA	SRMR	AIC	R^2 Anti-Bully Attitudes	R^2 Sympathy for Victims
Hostile Intent Attribution	4.75	.45	1.00	1.04	.00	.05	823.34	.05	.11
Ineffective Response Generation	7.91	.16	.44	-.57	.08	.07	843.46	.03	.01
Prosocial Response Generation	No Convergence								
Endorsement of Aggressive Response	8.14	.15	.64	-.01	.09	.07	842.41	.06	.03
Endorsement of Inept Response	7.60	.18	.00	-2.00	.08	.07	846.95	.05	.01
Endorsement of Competent Response	8.42	.13	.00	-2.26	.09	.07	849.06	.04	.02

NOTE: Gray shading indicates good global fit; CFI: acceptable fit ≥ .95; TLI: acceptable fit ≥ .95; RMSEA: acceptable fit ≤ .08; SRMR: acceptable fit ≤ .08

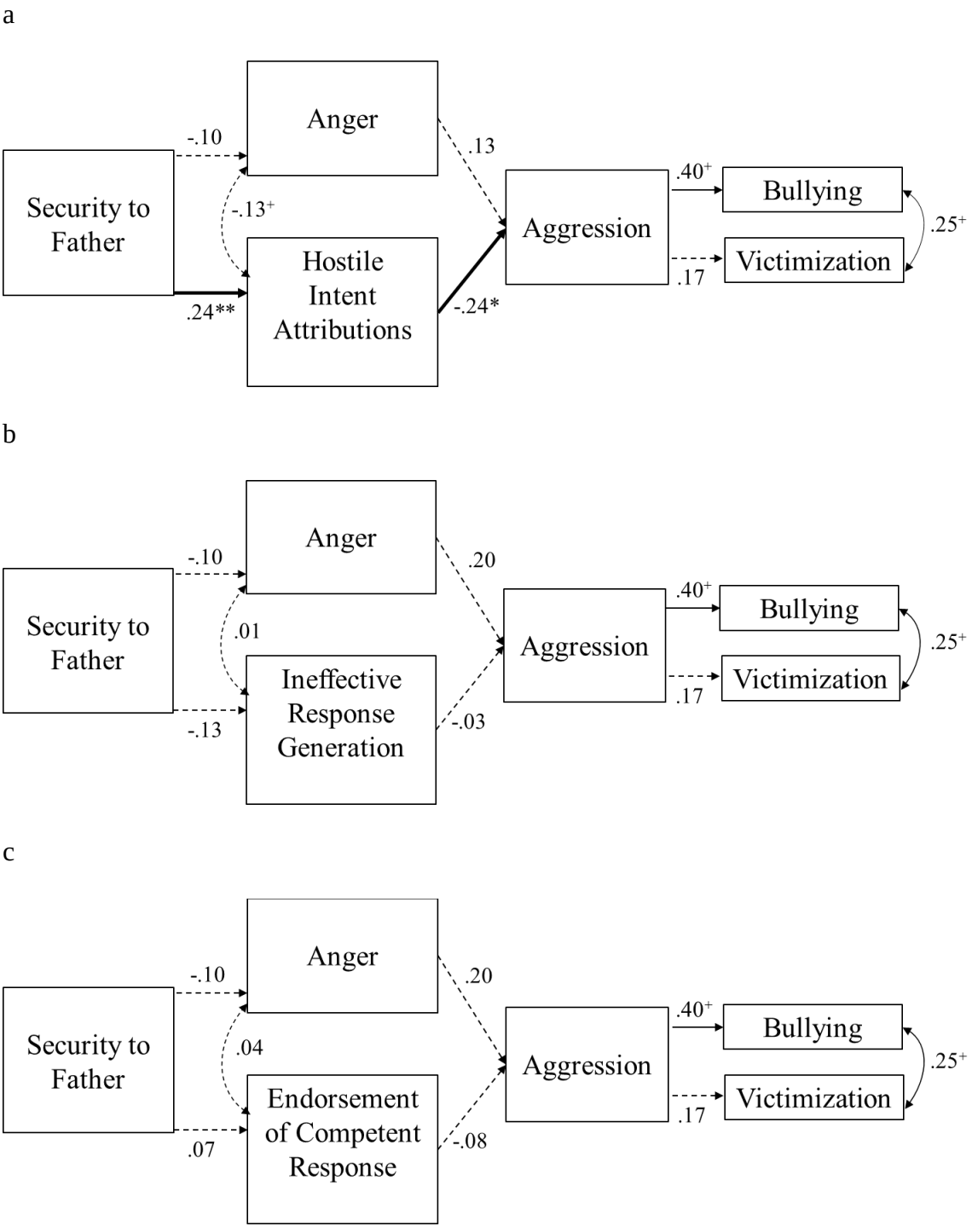

Figure 3. Father-child relationship: Pathways to bullying and victimization. Bold lines represent significant path coefficients; solid lines represent marginally significant path coefficients; dashed lines represent insignificant path coefficients.

was marginally associated with Hostile Intent Attribution (*B* = -.13, *SE* = .07, 95% CI [-.31, -.01], $p \leq .10$). However, this association was in the opposite direction from what would be expected. Children with *more anger* were *less likely to interpret cues as hostile*. Finally, victimization and bullying behavior were marginally associated, *B* =.25, *SE* = .14, 95% CI [.04, .61], $p \leq .10$. Security to fathers did not predict anger.

***Ineffective Response Generation*.** In the model that examined Ineffective Response Generation (Figure 4b), child sex was marginally associated with Ineffective Response Generation (*B* = -.16, *SE* = .10, 95% CI [-.34, .03], $p \leq .10$) and marginally associated with parent-reported aggression, *B* = -.15, *SE* = .09, 95% CI [-.33, .01], $p \leq .10$. Parent-reported aggression was marginally associated with bullying, *B* = .40, *SE* = .22, 95% CI [.10, 1.05], $p \leq .10$. Lastly, victimization and bullying behavior were also marginally associated, *B* =.25, *SE* = .14, 95% CI [.04, .60], $p \leq .10$. Security to fathers did not predict either anger or Ineffective Response Generation.

***Endorsement of Competent Response*.** In the model that examined Endorsement of Competent Response (Figure 4c), parent-reported aggression was marginally associated with bullying, *B* = .40, *SE* = .22, 95% CI [.10, 1.05], $p \leq .10$. Child's sex had a marginal association with parent-reported aggression, *B* = -.14, *SE* = .08, 95% CI [-.31, -.01], $p \leq .10$. A marginal association between victimization and bullying was also found, *B* =.25, *SE* = .14, 95% CI [.04, .61], $p \leq .10$. Security to fathers did not predict either anger or Endorsement of Competent Response.

Summary of the findings in father-child relationship models. Across three models, a pattern of results emerged. With the exception of one model, which was in the opposite direction from what was expected, security to fathers did not predict anger or

SIP. Anger did not predict parent-reported aggression in any of the models. In all of the models, there was a marginal link between parent-reported aggression and bullying and a marginally significant association between bullying and victimization. Thus, the front ends of the models were not supported; however, the pathway from parent-reported aggression to bullying is consistent with previous literature.

Path Analyses for Anti-Bullying Attitudes and Sympathy toward Victims

There were 12 models (6 for the mother-child relationship and 6 for the father-child relationship) that examined pathways to anti-bullying attitudes and sympathy towards victims. The same bootstrap approach was used as described above. All path analyses followed the pattern depicted in Figures 1b – the SIP variable and security to parent changed within each analysis. To reiterate, the SIP variables of interest were Hostile Intent Attribution, Ineffective Response Generation, Prosocial Response Generation, Endorsement of Aggressive Response, Endorsement of Inept Response, and Endorsement of Competent Response. All SIP variables were standardized prior to analyses.

Of the 12 models, only two models showed good global fit (Tables 5 and 6). The two models that examined Prosocial Response Generation did not converge and the interpretation of fit did not take place. Both models with good global fit involved Hostile Intent Attribution and component fit was further examined. A pictorial representation of findings can be found in Figure 4a and 4b.

Hostile Intent Attribution within mother-child relationship. In the model that examined Hostile Intent Attribution (Figure 4a), anger marginally predicted anti-bullying attitudes, B = -.26, SE = .15, 95% CI [-.60, -.02], $p \leq .10$; thus, as predicted, children who

showed more anger were less likely to repudiate bullying. Hostile Intent Attribution significantly predicted sympathy towards victims, B = -.28, SE = .10, 95% CI [-.51, -.08], $p \leq .01$; children who interpreted ambiguous cues as hostile were less likely to have sympathy for victims of bullying, as predicted. Anger and Hostile Intent Attribution were significantly associated, B = -.18, SE = .08, 95% CI [-.35, -.03], $p \leq .05$, although this association was in the opposite direction from our predictions; children who interpreted ambiguous cues as hostile were *less likely to show anger*. Security to mothers did not predict either anger or Hostile Intent Attribution. No association was found between sympathy towards victims and anti-bullying attitudes.

Hostile Intent Attribution within father-child relationship. In the model that examined Hostile Intent Attribution (Figure 4b), security to fathers significantly predicted Hostile Intent Attribution, B =.24, SE = .08, 95% CI [.08, .38], $p \leq .01$; however this finding was in an unexpected direction. We expected children who were more securely attached to their fathers to attribute *less* hostile intentions to ambiguous situations. Additionally, parent-reported anger marginally predicted anti-bullying attitudes, B = -.25, SE = .14, 95% CI [-.58, .00], $p \leq .10$, as predicted. Hostile Intent Attribution significantly predicted sympathy towards victims, B = -.33, SE = .10, 95% CI [-.52, -.12], $p \leq .01$, as predicted. Anger and Hostile Intent Attribution were marginally associated, B = -.13, SE = .07, 95% CI [-.31, -.01], $p \leq .10$, although in an unexpected direction with children who interpreted ambiguous cues as hostile *showing less anger.* Security to fathers did not predict anger. No association was found between sympathy towards victims and anti-bullying attitudes.

Summary of findings. In the pathways to anti-bullying attitudes and sympathy for victims, the models that examined Hostile Intent Attribution produced promising findings. Across the mother-child and father-child relationships, anger, at least marginally, predicted anti-bullying attitudes such that children who showed more anger were less likely to repudiate bullying. Additionally, Hostile Intent Attribution

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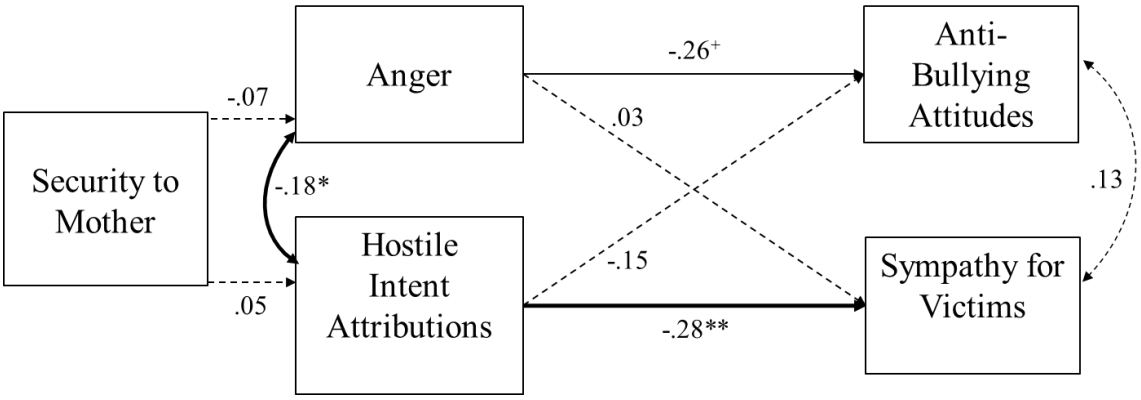

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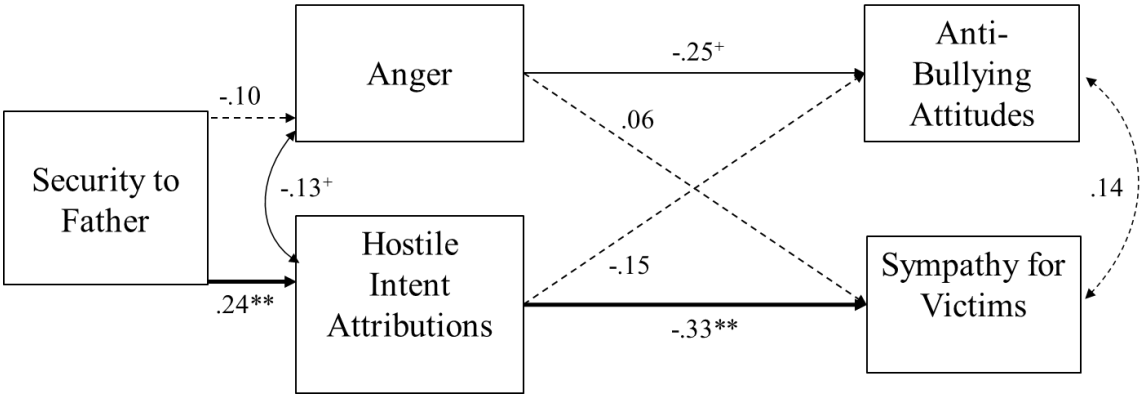

Figure 4. Pathways to anti-bullying attitudes and sympathy towards victims of bullying within the mother-child relationship and the father-child relationship. Bold lines represent significant path coefficients; solid lines represent marginally significant path coefficients; dashed lines represent insignificant path coefficients.

significantly predicted sympathy towards victims – children who had a tendency to interpret ambiguous acts as hostile were less likely to feel sympathy towards victims of bullying. Lastly, within the father-child relationship only, children who had been secure with fathers in infancy were more likely to attribute hostile intent in ambiguous situations which was unexpected and contrary to our hypothesis.

Post-Hoc Regression Analyses Predicting Aggression, Bullying, Victimization, Anti-Bullying Attitudes, and Sympathy towards Victims of Bullying

The path analyses described above suggest good global fit despite having overall poor component fit. It is possible that these inconsistencies emerge from the small sample size used in the analyses. For example, the chi-square test statistic may suggest a good fit if sample sizes are small even if the model is actually poorly specified; however, other fit statistics are less affected by sample size (e.g., CFI) (Tabachnick & Fidell, 2007; Tomarken & Waller, 2003). Power is affected by sample size, as commonly noted, but within structural equation modeling, power can also be affected by hard-to-detect misspecification issues (Tomarken & Waller, 2003). It is also possible that the global fit and component fit inconsistencies could be a result of our SIP measures, which are only based on three ambiguous vignettes, which may have undermined the robustness of that variable.

Because the above path analyses were not conclusive, a series of post-hoc regression analyses were completed to gain a better understanding of the relations among the variables of interest. These regressions were exploratory, and as such, only one SIP variable was examined. Attributions are among the most basic aspects of social cognition (Kelley & Michela, 1980), and attributions of hostile intent have been directly linked to

aggression (Dodge, 1980; Dodge, Bates, & Pettit, 1990); consequently, we focused on Hostile Intent Attribution. Security to mother and security to father were examined together within the same equations. In the models that follow, the child's sex was entered at Step 1, security scores to mothers and to fathers were entered at Step 2, anger was entered at Step 3, Hostile Intent Attribution was entered at Step 4, and parent-reported aggression was entered at Step 5. One exception was the first regression, examining parent-reported aggression as the dependent variable, which only comprised the first four steps.

Predicting aggression. In the final step with all the predictors entered, the child's sex (B =.29, SE =.20, $p \leq .01$), security to mothers (B = -.28, SE =.47, $p \leq .01$), and Hostile Intent Attribution (B = -.30, SE =.10, $p \leq .01$) all predicted parent-reported aggression (Table 7). Children who were male, had insecure attachment relationships with their mothers, and attributed less hostile intentions to protagonists in ambiguous situations were more likely to be reported as aggressive.

Predicting bullying. In the final step with all the predictors entered, only parent-reported aggression significantly predicted bullying behavior (B =.31, SE =.16, $p \leq .05$). Children who were seen by their parents as more aggressive reported more bullying behavior. Note that no other variable significantly predicted bullying in any of the other steps (Table 8).

Predicting victimization. As seen in Table 8, in Step 2, when only the scores for security to parents were entered as predictors of victimization, a main effect of security to mothers on victimization was found: Children who had insecure relationships with their mothers were more likely to be victimized by their peers (B = -.26, SE =.66, $p \leq .05$). In

the final step with all predictors entered, insecurity to mother remained marginally significant, predicting more victimization (B = -.24, SE =.69, $p \leq .10$).

Predicting anti-bullying attitudes. In the final step with all predictors entered, none of the variables significantly predicted anti-bullying attitudes. Additionally, none of the variables predicted anti-bullying attitudes at any of the earlier steps (Table 9).

Predicting sympathy towards victims. In the final step with all predictors entered, only Hostile Intent Attribution predicted sympathy towards victims (B = -.29, SE =.14, $p \leq .05$). Children who made more hostile attributions in ambiguous situations were less likely to have sympathy for victims of bullying (Table 9).

Summary of regression analyses. Although attachment security failed to have any meaningful significant links within the path analyses, these exploratory regression analyses show significant links between insecurity to mothers and aggression and victimization. Additionally, the regression analyses revealed a significant association between aggression and bullying that only emerged as a marginal finding within some of the path analyses. Lastly, consistent with the findings that emerged in the respective path analyses, children who interpreted ambiguous cues as hostile were less likely to feel sympathy for victims.

Table 7

Exploratory regression analyses examining the effects of child's sex, attachment security, anger, and hostile intent attribution on aggression (C=Child, M=Mother, F=Father)

		DV: Parent-Reported Aggression			
		Step 1	Step 2	Step 3	Step 4
Predictors:		*Beta (SE)*	*Beta (SE)*	*Beta (SE)*	*Beta (SE)*
Step 1	C Sex	.30 (.20)**	.23 (.20)*	.22 (.20)$^{+}$	.29 (.20)**
Step 2	M Security		-.32 (.49)**	-.31 (.49)**	-.28 (.47)**
	F Security		.02 (.53)	.01 (.54)	.02 (.51)
Step 3	C Anger			.13 (.12)	.06 (.12)
Step 4	Hostile Attribution				-.30 (.10)**
		R^2 = .09	R^2 = .18	R^2 = .20	R^2 = .28

+ $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; Note: After Step 1, $F(1, 80) = 7.72$**; after Step 2, $F(3, 78) = 5.71$**; after Step 3, $F(4, 77) = 4.72$**; after Step 4, $F(5, 76) = 5.77$***

Table 8

Exploratory regression analyses examining the effects of child's sex, attachment security, anger, hostile intent attribution, and aggression on bullying and victimization (C=Child, M=Mother, F=Father)

		DV: Bullying Behavior					DV: Victimization				
		Step 1	Step 2	Step 3	Step 4	Step 5	Step 1	Step 2	Step 3	Step 4	Step 5
Predictors:		β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
Step 1	C Sex	.16(.24)	.15(.26)	.14(.27)	.16(.28)	.09(.27)	.03(.25)	.02(.26)	-.01(.26)	-.00(.27)	-.02(.28)
Step 2	M Security		-.14(.67)	-.14(.67)	-.13(.68)	-.07(.67)		-.26(.66)*	-.25(.66)$^{+}$	-.25(.67)$^{+}$	-.24(.69)$^{+}$
	F Security		.03(.68)	.02(.70)	.02(.71)	.03(.68)		.08(.68)	.05(.69)	.05(.70)	.05(.70)
Step 3	C Anger			.05(.17)	.03(.17)	-.01(.17)			.13(.17)	.13(.17)	.12(.17)
Step 4	Hostile Attribution				-.08(.13)	.01(.14)				-.01(.13)	.01(.14)
Step 5	Aggression					.31(.16)*					.07(.17)
		R^2 = .03	R^2 = .04	R^2 = .05	R^2 = .05	R^2 = .12	R^2 = .00	R^2 = .06	R^2 = .08	R^2 = .08	R^2 = .08

+ $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; Note: Predicting Bullying Behavior, after Step 1, $F(1, 67) = 1.75$, *ns*; after Step 2, $F(3, 65) = .99$, *ns*; after Step 3, $F(4, 64) = .77$, *ns*; after Step 4, $F(5, 63) = .69$, *ns*; after Step 5, $F(6, 62) = 1.47$, *ns*. Predicting Victimization, after Step 1, $F(1, 67) = .08$, *ns*; after Step 2, $F(3, 65) = 1.43$, *ns*; after Step 3, $F(4, 64) = 1.36$, *ns*; after Step 4, $F(5, 63) = 1.08$, *ns*; after Step 5, $F(6, 62) = .92$, *ns*

Table 9

Exploratory regression analyses examining the effects of child's sex, attachment security, anger, hostile intent attribution, and aggression on sympathy for victims of bullying and anti-bullying attitudes (C=Child, M=Mother, F=Father)

		DV: Sympathy for Victims					DV: Anti-Bullying Attitudes				
		Step 1	Step 2	Step 3	Step 4	Step 5	Step 1	Step 2	Step 3	Step 4	Step 5
Predictors:		β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
Step 1	C Sex	-.12(.24)	-.18(.26)	-.20(.26)	-.13(.26)	-.10(.27)	-.01(.24)	-.04(.26)	-.02(.26)	.03(.27)	.03(.28)
Step 2	M Security		-.15(.66)	-.15(.66)	-.12(.65)	-.15(.67)		.10(.67)	.08(.67)	.10(.67)	.10(.69)
	F Security		-.08(.67)	-.11(.69)	-.10(.68)	-.10(.68)		-.14(.68)	-.10(.70)	-.10(.69)	-.09(.70)
Step 3	C Anger			.11(.17)	.06(.16)	.08(.17)			-.16(.17)	-.20(.17)	-.20(.17)
Step 4	Hostile Attribution				-.25(.13)	-.29(.14)*				-.17(.13)	-.17(.14)
Step 5	Aggression					-.13(.16)					-.01(.17)
		R^2 = .02	R^2 = .05	R^2 = .06	R^2 = .12	R^2 = .13	R^2 = .00	R^2 = .02	R^2 = .04	R^2 = .07	R^2 = .07

+ $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; Note: Predicting Sympathy for Victims, after Step 1, $F(1, 67) = 1.02$, *ns*; after Step 2, $F(3, 65) = 1.12$, *ns*; after Step 3, $F(4, 64) = 1.04$, *ns*; after Step 4, $F(5, 63) = 1.69$, *ns*; after Step 5, $F(6, 62) = 1.55$, *ns*. Predicting Anti-Bullying Attitudes, after Step 1, $F(1, 67) = .01$, *ns*; after Step 2, $F(3, 65) = .41$, *ns*; after Step 3, $F(4, 64) = .73$, *ns*; after Step 4, $F(5, 63) = .95$, *ns*; after Step 5, $F(6, 62) = .78$, *ns*

CHAPTER IV

DISCUSSION

The main goal of this study was to better understand the pathways to bullying, victimization, and anti-bullying attitudes and sympathy for victims. This study has several strengths, including a multi-method, multi-trait, multi-assessments approach within a longitudinal design. Another contribution of this study is the consideration of the father-child relationship. Although both relationships are critical for development, research including mothers and fathers continues to be sparse (Berlin, Cassidy, & Appleyard, 2008; Brumariu & Kerns, 2010; Fearon et al., 2010; Steele, Steele, & Fonagy, 1996; Phares, Fields, Kamboukos, & Lopez, 2005).

A substantial number of path analyses were carried out to address five main hypotheses. Each hypothesis will be described below.

First, it was predicted that children's early attachment insecurity would be linked to their higher anger proneness and maladaptive SIP patterns. Across all of the models, there was no significant path from security to mothers to anger proneness or from security to fathers to anger proneness. The lack of association between anger and insecurity is unexpected given empirical evidence; as an example, Mikulincer (1998) found that children who were coded as insecure showed more anger (see also Kochanska, 2001). The lack of findings also runs contrary to Bowlby's theory (1973/1982) which suggested that anger develops in response to attachment insecurity when the child's needs are not met.

There are a few reasons why we believe the link between anger and insecurity was not found. First, it could be the case that insecure children differ in their expression

of anger. Children who have an avoidant attachment to their parent tend to suppress their emotional expressions and may experience anger inwardly (i.e., have "anger-in" experiences where they tend to ruminate over but outwardly suppress anger), but overtly anger is repressed (Mikulincer et al., 1993; Siegel, 1986). Children whose attachment is ambivalent (or resistant), on the other hand, might be more likely to have "anger-out" experiences (i.e., the tendency to have open expressions of anger; Siegel, 1986). These differences in anger expression may emerge, at least partially, from early experiences with caregivers; as an example, Berlin and Cassidy (2003) have found that avoidant children had mothers who reported trying to control and discourage negative emotions while resistant children had mothers who reported less control of negative emotions. Thus, it is possible that insecure avoidant and insecure resistant children simply show anger differently, and these differences obscure associations between attachment insecurity, measured generally, and anger. Due to the small sample size, we were unable to examine avoidant and resistant children separately, but further research could help elucidate this issue.

Second, on a related note, we might not have found a link between attachment insecurity and anger because of methodological issues. Namely, we used a behavioral measure of anger, and while such measures are the "gold standard", further research that examines physiological signs of anger could be utilized in addition to behavioral data to gain a better understanding of experience of anger in insecure versus secure children.

We only found one link from security to mothers to SIP: Security to mothers was associated with lower endorsement of a competent response. We also only found one link from security to fathers to SIP: Security to fathers was positively associated with Hostile

Intent Attribution. Both of these associations were contrary to predictions. Insecure children were expected to be more likely to interpret ambiguous cues as hostile and less likely to endorse competent responses similar to previous research (e.g., Granot & Mayseless, 2012).

It is not clear why these findings emerged. However, it is possible that secure children are reading emotional cues in the ambiguous situations in a different way than insecure given that secure individuals have greater emotional intelligence (Kafetsios, 2004). Further, given that Hostile Intent Attribution was not correlated with other steps of SIP in this sample, it is possible that secure children may be sensitive to the negative emotions within the vignettes but choose not to act aggressively in response to the emotions. It is also possible that insecure children – particularly avoidant – might view the ambiguous vignettes using a preemptive defense strategy. That strategy would entail ignoring or dismissing hostility depicted in the vignettes to avoid activating negative feelings and thoughts (Cassidy, 1988; Fraley, Garner, & Shaver, 2000). Thus, although our first hypothesis was largely not supported, further research that would include measures of emotional competence might elucidate the link between attachment and social information processing.

The second hypothesis suggested that anger proneness would be associated with maladaptive SIP. Anger was associated with only one SIP variable, Hostile Intent Attribution; however, this relation was contrary to expectations. Children who displayed less anger were more likely to interpret ambiguous intent as hostile. As described above, this unexpected finding could be explained by the way in which anger was measured. It is quite possible that children who interpret cues as hostile do experience anger, but do not

necessarily manifest it behaviorally. In a simple correlation, anger was positively associated with an additional SIP variable, Endorsement of Aggressive Response – children who displayed more anger were more likely to evaluate an aggressive response as positive ($r(86) = .24$, $p < .05$). However, this relation was no longer found when additional variables were examined within the larger models. Thus, in conclusion, our second hypothesis was not supported, but more work needs to be undertaken to examine the relation between anger and social information processing in complex models that capture a broader developmental perspective and rely on multiple measures of the studied constructs.

The third hypothesis suggested that both anger and SIP would predict parent-reported aggression. We found no support for a link between anger proneness and parent-reported aggression, contrary to Berkowitz' model (1990), which suggests that aggression is a reaction to a perceived frustration (thereby suggesting that anger and aggression should always be linked). There are two possible reasons why the link between anger and aggression may not have been found. First, anger scores in our sample may be lower than expected. Our community sample is generally low risk, and early adaptive parenting might have been a protective factor against the development of anger. As such, the link between attachment insecurity to anger proneness was not found within any of our models. Second, it is also possible that the children in our study do experience anger but choose to not act on that anger with aggressive behavior; children in well-functioning families, like those in our sample, learn appropriate ways to handle negative affect that do not include acting aggressively.

Note, though, that there was variability in the children's attachment styles and security scores - a sizeable percentage of the children in our study were classified as insecure with their mothers or their fathers.

We found one unanticipated link between a SIP variable and parent-reported aggression. In particular, within both the mother-child and father-child relationship models, Hostile Intent Attribution negatively predicted parent-reported aggression.

This runs contrary to the extant research conducted by Dodge and colleagues since the 1980s. According to their theory, Dodge and Crick (1990) note that an aggressive act is dependent on maladaptive processing – aggression will not usually occur if a child uses skillful, adaptive processing, even if that child is provoked. Empirically, aggressive children are more likely to make hostile attributions (Steinberg & Dodge, 1982) and usually evaluate competent responses less favorably when compared to children who are not aggressive (Asarnow & Callan, 1985). Thus, across the models, we did not find support for a link between maladaptive social information processing and aggression.

The fourth hypothesis predicted that parent-reported aggression would have direct links to both bullying behavior and victimization. In all five of the models that examined the mother-child relationship, parent-reported aggression indeed marginally predicted victimization but did not predict bullying behavior. In all three of the models that examined the father-child relationship, parent-reported aggression indeed marginally predicted bullying behavior but did not predict victimization. Thus, the fourth hypothesis was supported, but an unexpected difference in patterns between the mother-child and father-child relationships emerged.

We believe that the differences in the pathways for mother- and father-child relationships could be related to the way in which aggression was assessed, which may not have captured heterogeneity within aggression. We used one measure of overt aggression (an aggregate of mothers' and fathers' reports); however, other lines of research have distinguished between reactive and proactive aggression (e.g., Card & Little, 2006; Crick & Dodge, 1996; Dodge, 1991; Dodge & Coie, 1987; Hartup, 1974). Reactive aggression is normally an impulsive, aggressive reaction to a perceived threat or frustration. This type of aggression is reflected in temper tantrums or anger proneness. Proactive aggression is a planned, premeditated form of aggression, in which the aggressor hopes to achieve dominance over others or has something to gain. Such behavior can be seen as a deliberate attack, during times of peer dominance, or bullying (Crapanzano, Frick, & Terranova, 2010; Dodge, 1991).

Although reactive and proactive types of aggression typically tend to be positively associated, their origins differ. Dodge (1991) proposed that reactive aggression develops from early experiences that involve negative affect associated with threatening stimuli and environments (e.g., growing up in a ghetto or war zone; trauma at losing a loved one; being physically abused). In a similar vein, early sub-optimal attachment relationships (deprivation, neglect, abuse, or inconsistency) can lead to poor emotion regulation, exaggerated emotion expression, reactive aggression, and hypervigilance (Dodge, 1991). Thus, Dodge's propositions nicely dovetail with Berkowitz' (1989) frustration-aggression model, in that they describe reactive aggression emerging as a reaction to perceived frustration.

Proactive aggression is hypothesized to emerge from experiences that have been explained through the social learning theory framework – aggression that is rewarded is reinforced (Bandura, 1973). Environments that are filled with aggression (e.g., exposure to violence in movies or on television) enhance the child's available aggressive strategies while at the same time lessening the possible nonaggressive, socially acceptable, strategies that child may use (Dodge, 1991). Thus, experience with aggression that is favorably perceived will increase future aggressive responses (Dodge, 1991; Pettit, Dodge, & Brown, 1988).

Compared to children who are uninvolved with bullying, children who are bullies or bully/victims are more likely to exhibit both types of aggression (Camodeca et al., 2002; Ragatz et al., 2011; Salmivalli & Nieminen, 2002). Salmivalli and Nieminen (2002) found that children who were only victims were perceived to be more reactively aggressive than children in the control group. More importantly, children who were bullies were perceived to be proactively aggressive by their peers. Children seen as reactively aggressive were not seen as bullies.

Our models show aggression as an aggregate of mothers' and fathers' reports, and not as two separate types of aggression. However, whether or not reactive and proactive aggression are differentially predicted by attachment insecurity (and other constructs in the model) is an empirical question. Given that insecure resistant children are more likely to be explosive, emotionally under-regulated, and to have a low tolerance for frustration, they may be more likely to show reactive aggression. Insecure avoidant children, who are more likely to be insensitive to others and lack empathy, but are overtly emotionally regulated (or even over-regulated) may be more likely to show proactive aggression

(Sroufe, 1983; Weinfeld, Sroufe, Egeland, & Carlson, 2008). In the future, aggression should be examined as two separate types of aggression, reactive versus proactive, rather than as one construct, to highlight more fine-grained relations among attachment, social information processing, aggression, and bullying.

Lastly, the fifth hypothesis concerned the models for anti-bullying attitudes and sympathy for victims. It was predicted that less anger and more adaptive SIP would be associated with anti-bullying attitudes and sympathy for victims of bullying. Although only two of the fourteen models showed good global fit, an expected pattern nevertheless emerged: Less anger was marginally associated with more repudiation of bullying, whereas fewer Hostile Intent Attributions significantly predicted more sympathy for victims.

It makes theoretical sense that children who have more sympathy for victims are less likely to interpret others' actions as aggressive and that children who denounce bullying tend to show less anger. It is unclear, however, why the opposite pattern did not emerge: We did not find a link between low anger proneness and sympathy for victims or a link between Hostile Intent Attribution and anti-bullying attitudes. Further, relatedly, given that individuals interpret social information based on their own schemata, knowledge, and internal working models (Crick & Dodge, 1994, 1996), it is unclear why sympathy for victims and anti-bullying attitudes were not correlated in this sample.

General Analyses

Our first hypothesis that attachment security would have direct links to anger proneness and SIP variables was not supported. However, it is often the case that security to parents sets in motion complex cascades rather than direct paths leading to effects

(Kochanska & Kim, 2012; Sroufe, 2005). Therefore, for each of the models, we also examined the indirect paths from attachment security to mothers and to fathers and all of the outcome variables. Only one indirect path was significant. The standardized indirect path from security to father to sympathy for victims through Hostile Intent Attribution was significant, B = -.09, SE = .04, 95% CI [-.17, -.01], $p \leq .05$; however, this finding runs contrary to what would be expected by suggesting that children who were more secure with fathers were less likely to have sympathy for victims. Thus, it is interesting that so many of the models showed satisfactory global fit given that many direct paths did not reach significance and the indirect paths were also not significant. Implementing a later measure of attachment security, a more differentiated measure of anger proneness, and a more fine-grained measure of aggression may help clarify these paths. Relatedly, while all of the above hypotheses reflect pathways within our overall model, we also thought that the overall model would be a good fitting model. Of the 20 models that were examined, 10 showed good fit, which in general supports our model.

We should note that there were several effects of the child's sex on the studied variables. Within developmental literature, sex differences often emerge in studies that examine socioemotional competence, broadly defined – girls typically have higher competence scores (e.g., Carter, Briggs-Gowan, Jones, & Little, 2003; Colle & Del Guidice, 2011; LaFreniere & Dumas, 1996; McClure, 2000). Socioemotional competence underlies most of the variables in the models. Emotional competence is said to emerge from attachment security (Sroufe, 1996). Emotional regulation, particularly adaptive expressions of anger, allows a child to process social information in an adaptive manner. Emotional competence helps children get along with their peers, while incompetence

promotes aggression. Whereas we did control for sex where appropriate, treating sex as a moderator (examining models separately for boys and for girls) rather than a covariate would be a better strategy. Given our sample size, this was not possible for the current project. Future work that utilizes larger samples may be better able to examine gender effects.

Future Directions

Some future directions have already been discussed. However, researchers interested in bullying should more carefully consider the definition of bullying itself. Namely, the picture of a "typical" bully is not always clear. There are two general sets of findings on bullies that present a very different picture of a typical bully. In one commonly-held view, "hot" bullies are seen as impulsive in their aggression, highly reactive, generally lacking in social skills, and prone to poorly regulated negative emotions, such as anxiety and anger (Farrington, 1993; Vaillancourt et al., 2003).

However, another view is of bullies as callous, confident, and emotionally "cold" while they mistreat others (Sutton, Smith, & Swettenham, 1999). Those "cold" bullies often have good Theory-of-Mind skills (Sutton et al., 1999), show considerable social competence, emotion regulation, and intelligence, and have a high standing in their peer groups (Kaukiainen et al., 2002; Vaillancourt et al., 2003). Their emotions are often shallow and their propensity to feel remorse and empathy are compromised (Fanti, Frick, & Georgiou, 2009). Given their understanding of the social world, these bullies are better able to manipulate others and pick victims who seem particularly vulnerable (Arsenio & Lemerise, 2001). Those cold bullies are often able to have positive social relationships and can be proficient at masking their aggressiveness (Salmivalli & Nieminen, 2002).

This difference between "cold" versus "hot" bullies is consistent with recent work conducted by Fowles and Dindo (2009), who have distinguished between two types of psychopaths: those who are impulsive and antisocial, who lack behavioral regulation, show early behavior problems and delinquency, and those who are emotionally detached, and who lack guilt and empathy, are callous and manipulative, but may seem charming and socially smooth. Future work should take note of these differences.

Limitations

To our knowledge, this is the first attempt to explain pathways to bullying and peer victimization that integrates research on children's early attachment to parents, anger proneness, and social cognition within a developmentally-informed longitudinal design. However, this work has several limitations.

First, our small sample size was somewhat prohibitive – as an example, described above, it would be useful to examine the models separately for boys and girls and separately for avoidant and resistant children. However, it should be noted that obtaining longitudinal data such as ours relies on families' devotion to a research project. Consequently, the very modest attrition of children and families assessed over the first twelve years of their lives is nevertheless impressive. However, replication of this design with a larger sample is recommended.

Second, because of the recruiting procedures, and confirmed by the scores on the clinical measures, this sample consists of generally well-functioning children and families. When the constructs of interest include aggression, bullying, and victimization, constructs whose prevalence rates are not very high and which are more likely to be seen in more at-risk samples of children, it is important to consider more diverse populations.

The generalizability of our study is therefore limited to community families, and conclusions cannot be drawn about high-risk families that experience considerable stresses and hardships.

Third, the children in this study may have under-reported the degree to which they participated in bullying or were victimized. Answers on the bullying questionnaires were not necessarily anonymous – parents may have been present at the time of the survey, and it is unknown how many parents reviewed the questions with their children and how many allowed their children privacy while they were completing the questionnaires.

Fourth, our SIP measures were only based on three ambiguous vignettes, which may have undermined the robustness of that variable. The possible range of scores for hostile intent attribution, for example, could only be between 3 and 6. Further, roughly 75% of the children in this study received a score of 5 or 6 in hostile attributions, indicating that most children, when given the option of "mean" or "not mean", reported that the provocateur's actions in the ambiguous vignettes were mean.

It is unclear why so many responses were hostile in those well-functioning children from a community sample. It is possible that asking if the provocateur is "mean" or "not mean" is a leading question in that it "primes" children to pay attention to "mean" cues. Children might respond differently if asked whether the provocateur's actions were "accidental" or "not accidental". Given that this variable is so skewed toward hostile attributions, the results described above are difficult to interpret; we conclude that the hostile attribution measure may not have been valid. At the minimum, future research should include more vignettes allowing for a larger range of scores and questions should be formulated in a more neutral manner.

Conclusion

This research has clear clinical and societal implications. Bullying and victimization are pervasive in society and have significant negative consequences for development. Parents have an important role in socialization, including helping children develop social competence among peers and helping children learn empathy and sympathy for others. Children who have poor, insecure, or suboptimal early relationships with their parents develop internal working models of others as unreliable, inconsistent, and untrustworthy. This in turn leads to a cycle of negative interactions with others. Future work can inform prevention and intervention research to protect children from being bullied or becoming bullies.

APPENDIX A. PEER SYMPATHY SCALE

Items on the Peer Sympathy Scale (PSS; MacEvoy & Leff, 2012)

1. How bad would you feel for another kid if he/she got teased or picked on by some other kids?
2. How bad would you feel for another kid if some other kids tore up his/her coat?
3. How bad would you feel for another kid if he/she got beat up by some other kids?
4. How bad would you feel for another kid if he/she got called mean names by some other kids?
5. How bad would you feel for another kid if he/she got hit by another kid?
6. How bad would you feel for another kid if some other kids told him/her that he/she could not play with them?
7. How bad would you feel for another kid if some other kids gossiped or said something mean about him/her behind his/her back?
8. How bad would you feel for another kid if some other kids rolled their eyes or made mean faces at them?
9. How bad would you feel for another kid if he/she got pushed or shoved by some other kids?
10. How bad would you feel for another kid if some other kids stole his/her lunch?
11. How bad would you feel for another kid if some other kids ruined a school project he/she had been working on?
12. How bad would you feel for another kid if some other kids cursed at or said bad words to him/her?

Additional item:

13. How bad would you feel for another kid if some kids sent him/her a mean text message or email?

APPENDIX B. ATTITUDES TOWARDS BULLYING SCALE

Items on the modified Attitudes towards Bullying scale (Salmivalli & Voeten, 2004); (*) indicates item is reverse-coded

1. One should try to help the bullied victims
2. Bullying may be fun sometimes (*)
3. It is the victims' own fault that they are bullied (*)
4. Bullying is stupid
5. Joining in on bullying is a wrong thing to do
6. It is not that bad if you laugh with others when someone is being bullied (*)
7. One should report bullying to the teacher
8. It is funny when someone ridicules a classmate over and over again (*)
9. Bullying makes the victim feel bad

REFERENCES

Ainsworth, M. D., & Bell, S. M. (1970). Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. *Child Development, 41,* 49-67. doi: 10.2307/1127388

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation.* Hillsdale, NJ: Erlbaum.

Ainsworth, M. D. S., & Wittig, B. A. (1969). Attachment and the exploratory behavior of one-year-olds in a strange situation. In B. M. Foss (Ed.), *Determinants of infant behavior: Vol. 4* (pp. 113-136). London: Methuen.

Arsenio, W. F., & Lemerise, E. A. (2001). Varieties of childhood bullying: Values, emotion processes, and social competence. *Social Development, 10,* 59-73. doi: 10.1111/1467-9507.00148

Asarnow, J. R., & Callan, J. W. (1985). Boys with peer adjustment problems: Social cognitive processes. *Journal of Consulting and Clinical Psychology, 53,* 80-87. doi: 10.1037/0022-006X.53.1.80

Asher, S. R., Renshaw, P. D., & Geraci, R. L. (1980). Children's friendships and social competence. *International Journal of Psycholinguistics, 7,* 27-39.

Austin, S., & Joseph, S. (1996). Assessment of bully/victim problems in 8 to 11 year olds. *British Journal of Educational Psychology, 66,* 447-456. doi: 10.1111/j.2044-8279.1996.tb01211.x

Barchia, K., & Bussey, K. (2011). Predictors of student defenders of peer aggression victims: Empathy and social cognitive factors. *International Journal of Behavioral Development, 35,* 289-297. doi: 10.1177/0165025410396746

Bandura, A. (1973). *Aggression: A social learning analysis*. Oxford, England: Prentice Hall.

Barnow, S., Lucht, M., & Freyberger, H. (2001). Influence of punishment, emotional rejection, child abuse, and broken home on aggression in adolescence: An examination of aggressive adolescents in Germany. *Psychopathology*, *34,* 167-173. doi: 10.1159/000049302

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107,* 238-246. doi: 10.1037/0033-2909.107.

Berkowitz, L. (1983). Aversively stimulated aggression: Some parallels and differences in research with animals and humans. *American Psychologist, 38,* 1135-1144. doi: 10.1037/0003-066X.38.11.1135

Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin, 106,* 59-73.

Berkowitz, L. (1990). On the formation and regulation of anger and aggression: A cognitive-neoassociationistic analysis. *American Psychologist, 45,* 494-503.

Berlin, L. J., & Cassidy, J. (2003). Mothers' self-reported control of their preschool children's emotional expressiveness: A longitudinal study of associations with infant-mother attachment and children's emotion regulation. *Social Development, 12,* 477-495. doi: 10.1111/1467-9507.00244

Berlin, L. J., Cassidy, J., & Appleyard, K. (2008).The influence of early attachments on other relationships. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (*2nd ed*.) (pp. 348-365). New York, NY: Guilford Press.

Bosworth, K., Espelage, D. L., & Simon, T. R. (1999). Factors associated with bullying behavior in middle school students. *Journal of Early Adolescence, 19,* 341-362. doi: 10.1177/0272431699019003003

Boulton, M. J., Bucci, E., & Hawker, D. D. S. (1999). Swedish and English secondary school pupils' attitudes towards, and conceptions of, bullying: Concurrent links with bully/victim involvement. *Scandinavian Journal of Psychology, 40,* 277-284. doi: 10.1111/1467-9450.404127

Boulton, M. J., & Underwood, K. (1992). Bully/victim problems among middle school children. *British Journal of Educational Psychology, 62,* 73-87. doi: 0.1111/j.2044-8279.1992.tb01000.x

Bowers, L., Smith, P. K., & Binney, V. (1994). Perceived family relationships of bullies, victims, and bully/victims in middle childhood. *Journal of Social and Personal Relationships,* 11, 215-232. doi: 10.1177/0265407594112004

Bowlby, J. (1969/1982), *Attachment and loss, Vol. 1: Attachment.* New York: Basic Books.

Bowlby, J. (1973). *Attachment and loss, Vol. 2: Separation.* New York: Basic Books.

Bowlby, J. (1979). *The Making and Breaking of Affectional Bonds.* London: Tavistock.

Bowlby, J. (1980). *Attachment and loss.* New York: Basic Books.

Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. *American Journal of Orthopsychiatry, 52,* 664-678.

Boyce, W. T., Essex, M. J., Woodward, H. R., Measelle, J.R., Ablow, J. C., Kupfer, D. J., & MacArthur Assessment Battery Working Group (2002). The confluence of mental, physical, social, and academic difficulties in middle childhood. I: Exploring the "head waters" of early life morbidities. *Journal of the American Academy of Child and Adolescent Psychiatry, 41,* 580-587.

Bretherton, I. (1985). Attachment theory: Retrospect and prospect. *Monographs of the Society for Research in Child Development, 50,* 3-35. doi: 10.2307/3333824

Bretherton, I. (1990). Communication patterns, internal working models, and the intergenerational transmission of attachment relationships. *Infant Mental Health Journal, 11,* 237-252. doi: 10.1002/1097-0355(199023)11:3<237::AID-IMHJ2280110306>3.0.CO;2-X

Brumariu, L. E., & Kerns, K. A. (2010). Parent-child attachment and internalizing symptoms in childhood and adolescence: A review of empirical findings and future directions. *Development and Psychopathology, 22,* 177-203. doi: 10.1017/S0954579409990344

Camodeca, M., & Goossens, F. A. (2005). Aggression, social cognitions, anger and sadness in bullies and victims. *Journal of Child Psychology and Psychiatry, 46,* 186-197.

Camodeca, M., Goossens, F. A., Meerum Terwogt, M., & Schuengel, C. (2002). Bullying and victimization among school-age children: Stability and links to proactive and reactive aggression. *Social Development, 11,* 332-345. doi: 10.1111/1467-9507.00203

Card, N. A., & Little, T. D. (2006). Proactive and reactive aggression in childhood and adolescence: A meta-analysis of differential relations with psychosocial adjustment. *International Journal of Behavioral Development, 30,* 466-480. doi: 10.1177/0165025406071904

Carter, A. S., Briggs-Gowan, M. J., Jones, S. M., & Little, T. D. (2003). The Infant-Toddler Social and Emotional Assessment (ITSEA): Factor structure, reliability, and validity. *Journal of Abnormal Child Psychology, 31,* 495-514. doi: 10.1023/A:1025449031360

Cassidy, J. (1988). Child-mother attachment and the self in six-year-olds. *Child Development, 59,* 121-134. doi: 10.2307/1130394

Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology (5th ed.). Vol. 3. Social, emotional, and personality development* (pp. 779-862). Hoboken, NJ: John Wiley & Sons, Inc.

Colle, L., & Del Giudice, M. (2011). Patterns of attachment and emotional competence in middle childhood. *Social Development, 20,* 51-72. doi: 10.1111/j.1467-9507.2010.00576.x

Craig, W. M. (1998). The relationship among bullying, victimization, depression, anxiety, and aggression in elementary school children. *Personality and Individual Differences, 24,* 123-130.

Crapanzano, A. M., Frick, P. J., & Terranova, A. M. (2010). Patterns of physical and relational aggression in a school-based sample of boys and girls. *Journal of Abnormal Child Psychology, 38,* 433-445. doi: 10.1007/s10802-009-9376-3

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

Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms on reactive and proactive aggression. *Child Development, 67,* 993-1002. doi: 10.2307/1131875

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66,* 710-722. doi: 10.2307/1131945

Curtner-Smith, M. E. (2000). Mechanisms by which family processes contribute to school-age boy's bullying. *Child Study Journal, 30,* 169-186.

Deater-Deckard, K., & Wang, Z. (2012). Anger and irritability. In M. Zentner & R. Shiner (Eds.), *The handbook of temperament* (pp. 124-144). New York: Guilford.

DeKlyen, M., & Greenberg, M. T. (2008). Attachment and psychopathology in childhood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (*2nd ed*.) (pp. 348-365). New York, NY: Guilford Press.

Deluty, R. H. (1983). Children's evaluations of aggressive, assertive, and submissive responses. *Journal of Clinical Child Psychology, 12,* 124-129. doi: 10.1080/15374418309533120

Dishion, T. J. (1990). The family ecology of boys' peer relations in middle childhood. *Child Development, 61,* 874-892. doi: 10.2307/1130971

Dodge, K. A. (1980). Social cognition and children's aggressive behavior. *Child Development, 51,* 162-170. doi: 10.2307/1129603

Dodge, K. A. (1985). Attributional bias in aggressive children. In P. C. Kendall (Ed.), *Advances in cognitive-behavioral research and therapy, Vol. 4. Advances in cognitive-behavioral research and therapy* (pp. 73-110). San Diego, CA, US: Academic Press.

Dodge, K. A. (1991). The structure and function of reactive and proactive aggression. In D. J. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 201-218). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc..

Dodge, K. A. (1993). Social-cognitive mechanisms in the development of conduct disorder and depression. *Annual Review of Psychology, 44,* 559-584. doi: 10.1146/annurev.ps.44.020193.003015

Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53,* 1146-1158. doi: 10.1037/0022-3514.53.6.1146

Dodge, K. A., & Crick, N. R. (1990). Social information-processing bases of aggressive behavior in children. *Personality and Social Psychology Bulletin, 16,* 8-22.

Dodge, K. A., & Frame, C. L. (1982). Social cognitive biases and deficits in aggressive boys. *Child Development, 53,* 620-635. doi: 10.2307/1129373

Dodge, K. A., Bates, J. E., & Pettit, G. S. (1990). Mechanisms in the cycle of violence. *Science, 250,* 1678-1683. doi: 10.1126/science.2270481

Dodge, K. A., Coie, J. D., & Lynam, D. (2006). Aggression and antisocial behavior in youth. In W. Damon, R. M. Lerner, & N. Eisenberg (Eds.), *Handbook of Child Psychology: Vol. 3. Social, Emotional, and Personality Development (6th ed.)* (pp.719-788). New York: Wiley.

Dodge, K. A., Laird, R., Lochman, J. E., & Zelli, A. (2002). Multidimensional latent-construct analysis of children's social information processing patterns: Correlations with aggressive behavior problems. *Psychological Assessment, 14,* 60-73. doi: 10.1037/1040-3590.14.1.60

Dodge, K. A., Pettit, G. S., Bates, J. E., & Valente, E. (1995). Social information-processing patterns partially mediate the effect of early physical abuse on later conduct problems. *Journal of Abnormal Psychology, 104,* 632-643. doi: 10.1037/0021-843X.104.4.632

Dodge, K. A., Pettit, G. S., McClaskey, C. L., & Brown, M. M. (1986). Social competence in children. *Monographs of the Society for Research in Child Development, 51,* 1-85. doi: 10.2307/1165906

Dodge, K. A., & Price, J. M. (1994). On the relation between social information processing and socially competent behavior in early school-aged children. *Child Development, 65,* 1385-1397. doi: 10.2307/1131505

Dutton, D. G. (2011). Attachment and violence: An anger born of fear. In P. R. Shaver & M. Mikulincer (Eds.), *Human aggression and violence: Causes, manifestations, and consequences. Herzilya series on personality and social psychology* (pp. 259-275). Washington, DC: American Psychological Association. doi: 0.1037/12346-014

Eisenberg, N., & Fabes, R. A. (1998). Prosocial development. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology, 5th ed.: Vol. 3. Social, emotional, and personality development* (pp. 701-778). Hoboken, NJ: John Wiley & Sons.

Elicker, J., Englund, M., & Sroufe, L. A. (1992). Predicting peer competence and peer relationships in childhood from early parent–child relationships. In R. D. Parke & G. W. Ladd (Eds.), *Family–peer relationships: Modes of linkage (*pp. 77-106). Hillsdale, NJ, England: Lawrence Erlbaum Associates.

Espelage, D. L., Bosworth, K., & Simon, T. R. (2000). Examining the social context of bullying behaviors in early adolescence. *Journal of Counseling and Development, 78,* 326-333.

Essex, M. J., Boyce, W. T., Goldstein, L. H., Armstrong, J. M., Kraemer, H. C., & Kupfer, D. J. (2002). The confluence of mental, physical, social, and academic difficulties in middle childhood. II: Developing the MacArthur Health and Behavior Questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry, 41,* 588-603.

Fanti, K. A., Frick, P. J., & Georgiou, S. (2009). Linking callous-unemotional traits to instrumental and non-instrumental forms of aggression. *Journal of Psychopathology and Behavioral Assessment, 31,* 285-298. doi: 10.1007/s10862-008-9111-3

Farrington, D. P. (1993). Understanding and preventing bullying. In M. Tonry & N. Morris (Eds.), *Crime and justice: An annual review of research* (*Vol. 17*) (pp. 381-458). Chicago: University of Chicago Press.

Finnegan, R. A., Hodges, E. V., & Perry, D. G. (1998). Victimization by peers: Associations with children's reports of mother-child interaction. *Journal of Personality and Social Psychology, 75,* 1076-1086. doi: 10.1037/0022-3514.75.4.1076

Flouri, E., & Buchanan, A. (2003). The role of mother involvement and father involvement in adolescent bullying behavior. *Journal of Interpersonal Violence, 18,* 634-644. doi: 10.1177/0886260503251129

Forman, D. R., O'Hara, M. W., Larsen, K., Coy, K. C., Gorman, L. L., & Stuart, S. (2003). Infant emotionality: Observational methods and the validity of maternal reports. *Infancy, 4,* 541-565.

Fowles, D. C., & Dindo, L. (2006). A dual deficit model of psychopathy. In C. J. Patrick (Ed.), Handbook of psychopathy (pp. 14–34). New York: Guilford.

Fowles, D. C., & Dindo, L. (2009). Temperament and psychopathy: A dual-pathway model. *Current Directions in Psychological Science, 18,* 179-183. doi: 10.1111/j.1467-8721.2009.01632.x

Fraley, R. C., Garner, J. P., & Shaver, P. R. (2000). Adult attachment and the defensive regulation of attention and memory: Examining the role of preemptive and postemptive defensive processes. *Journal of Personality and Social Psychology, 79,* 816-826. doi: 10.1037/0022-3514.79.5.816

Gini, G., Albiero, P., Benelli, B., & Altoe, G. (2008). Determinants of adolescents' active defending and passive bystanding behavior in bullying. *Journal of Adolescence, 31,* 93- 105. doi: 10.1016/j.adolescence.2007.05.002

Goldsmith, H. H., & Rothbart, M. K. (1999). *Laboratory Temperament Assessment Battery (PreLocomotor Version 3.1).* Unpublished manuscript, University of Wisconsin-Madison.

Granot, D., & Mayseless, O. (2012). Representations of mother-child attachment relationships and social-information processing of peer relationships in early adolescence. *Journal of Early Adolescence, 32,* 537-564. doi: 10.1177/0272431611403482

Graziano, W. G., Habashi, M. M., Sheese, B. E., & Tobin, R. M. (2007). Agreeableness, empathy, and helping: A person X situation perspective. *Journal of Personality and Social Psychology, 93,* 583-599. DOI: 10.1037/0022-3514.93.4.583

Guerra, N. G., Williams, K. R., & Sadek, S. (2011). Understanding bullying and victimization during childhood and adolescence: A mixed methods study. *Child Development, 82,* 295-310.

Hartup, W. W. (1974). Aggression in childhood: Developmental perspectives. *American Psychologist, 29,* 336-341. doi: 10.1037/h0037622

Haynie, D. L., Nansel, T., Eitel, P., Crump, A. D., Saylor, K., Yu, K., et al. (2001). Bullies, victims, and bully/victims: Distinct groups of at-risk youth. *Journal of Early Adolescence, 21,* 29-49. doi: 10.1177/0272431601021001002

Hazan, C., & Shaver, P. R. (1994). Attachment as an organizational framework for research on close relationships. *Psychological Inquiry, 5,* 1-22. doi: 10.1207/s15327965pli0501_1

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Education Modeling, 6,* 1-55. doi: 10.1080/10705519909540118

Juvonen, J., & Gross, E. F. (2008). Extending the school grounds? Bullying experiences in cyberspace. *The Journal of School Health, 78,* 496–505.

Kafetsios, K. (2004). Attachment and emotional intelligence abilities across the life course. *Personality and Individual Differences, 37,* 129-145. doi: 10.1016/j.paid.2003.08.006

Kaukiainen, A., Salmivalli, C., Lagerspetz, K., Tamminen, M., Vauras, M., Mäki, H., et al. (2002). Learning difficulties, social intelligence, and self-concept: Connections to bully-victim problems. *Scandinavian Journal of Psychology, 43,* 269-278. doi: 10.1111/1467-9450.00295

Kelley, H. H., & Michela, J. L. (1980). Attribution theory and research. *Annual Review of Psychology, 31,* 457-501. doi: 10.1146/annurev.ps.31.020180.002325

Kerns, K. A. (2008). Attachment in middle childhood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (*2nd ed*.) (pp. 366-382). New York, NY: Guilford Press.

Kestenbaum, R., Farber, E. A., & Sroufe, L. A. (1989). Individual differences in empathy among preschoolers: Relation to attachment history. *New Directions for Child Development, 44,* 51-64. doi: 10.1002/cd.23219894405

Kochanska, G. (2001). Emotional development in children with different attachment histories: The first three years. *Child Development, 72,* 474-490. doi: 10.1111/1467-8624.00291

Kochanska, G., & Kim, S. (2012). Toward a new understanding of legacy of early attachments for future antisocial trajectories: Evidence from two longitudinal studies. *Development and Psychopathology, 24,* 783-806. doi: 10.1017/S0954579412000375

Kowalski, R. M., & Limber, S. P. (2007). Electronic bullying among middle school students. *Journal of Adolescent Health, 41*, S22–S30.

Kumpulainen, K., & Räsänen, E. (2000). Children involved in bullying at elementary school age: Their psychiatric symptoms and deviance in adolescence: An epidemiological sample. *Child Abuse and Neglect, 24,* 1567-1577. doi: 10.1016/S0145-2134(00)00210-6

Kyriakides, L., Kaloyirou, C., & Lindsay, G. (2006). An analysis of the Revised Olweus Bully/Victim Questionnaire using the Rasch measurement model. *British Journal of Educational Psychology, 76,* 781-801.

LaFreniere, P. J., & Dumas, J. E. (1996). Social competence and behavior evaluation in children ages 3 to 6 years: The short form (SCBE-30). *Psychological Assessment, 8,* 369-377. doi: 10.1037/1040-3590.8.4.369

LaFreniere, P. J., & Sroufe, L. A. (1985). Profiles of peer competence in the preschool: Interrelations between measures, influence of social ecology, and relation to attachment history. *Developmental Psychology, 21,* 56-69. doi: 10.1037/0012-1649.21.1.56

Ladd, G., & Mize, J. (1983). Child maltreatment and attachment theory. A cognitive–social learning model of social-skill training. *Psychological Review, 90,* 127-157. doi: 10.1037/0033-295X.90.2.127

Ladd, G. W., & Oden, S. (1979). The relationship between peer acceptance and children's ideas about helpfulness. *Child Development, 50,* 402-408. doi: 10.2307/1129415

Lemerise, E. A., & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child Development, 71,* 107-118. doi: 10.1111/1467-8624.00124

Loeber, R., & Dishion, T. (1983). Early predictors of male delinquency: A review. *Psychological Bulletin, 94,* 68-99. doi: 10.1037/0033-2909.94.1.68

Lyons-Ruth, K. (1996). Attachment relationships among children with aggressive behavior problems: The role of disorganized early attachment patterns. *Journal of Consulting and Clinical Psychology, 64,* 64-73. doi: 10.1037/0022-006X.64.1.64

Lyons-Ruth, K., Alpern, L., & Repacholi, B. (1993). Disorganized infant attachment classification and maternal psychosocial problems as predictors of hostile-aggressive behavior in the preschool classroom. *Child Development, 64,* 572-585. doi: 10.2307/1131270

MacEvoy, J. P., & Leff, S. S. (2012). Children's sympathy for peers who are the targets of aggression. *Journal of Abnormal Child Psychology, 40,* 1137-1148. doi: 10.1007/s10802-012-9636-5

Mahady Wilton, M. M., Craig, W. M., & Pepler, D. J. (2000). Emotional regulation and display in classroom victims of bullying: Characteristic expressions of affect, coping styles, and relevant contextual factors. *Social Development, 9,* 226-245.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development, 50,* 66-104. doi: 10.2307/3333827

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/ disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention. The John D. and Catherine T. MacArthur Foundation series on mental health and development* (pp. 121-160). Chicago, IL: University of Chicago Press.

Marsee, M. A., & Frick, P. J. (2007). Exploring the cognitive and emotional correlates to proactive and reactive aggression in a sample of detained girls. *Journal of Abnormal Child Psychology, 35,* 969-981. doi: 10.1007/s10802-007-9147-y

Marsh, H. W., Nagengast, B., Morin, A. J. S., Parada, R. H., Craven, R. G., & Hamilton, L. R. (2011). Construct validity of the multidimensional structure of bullying and victimization: An application of exploratory structural equation modeling. *Journal of Educational Psychology, 103,* 701-732.

McClure, E. B. (2000). A meta-analytic review of sex differences in facial expression processing and their development in infants, children, and adolescents. *Psychological Bulletin, 126,* 424-453. doi: 10.1037/0033-2909.126.3.424

Mikulincer, M. (1998). Adult attachment style and individual differences in functional versus dysfunctional experiences of anger. *Journal of Personality and Social Psychology, 74,* 513-524. doi: 10.1037/0022-3514.74.2.513

Mikulincer, M., Florian, V., & Weller, A. (1993). Attachment styles, coping strategies, and posttraumatic psychological distress: The impact of the Gulf War in Israel. *Journal of Personality and Social Psychology, 64,* 817-826. doi: 10.1037/0022-3514.64.5.817

Mize, J., & Ladd, G. W. (1988). Predicting preschoolers' peer behavior and status from their interpersonal strategies: A comparison of verbal and enactive responses to hypothetical social dilemmas. *Developmental Psychology, 24,* 782-788. doi: 10.1037/0012- 1649.24.6.782

Muthén, L. K., & Muthén, B. O. (1998-2011). *Mplus User's Guide (6th ed.)*. Los Angeles, CA: Muthén & Muthén.

Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *Journal of the American Medical Association, 285,* 2094-2100.

Nickerson, A. B., Mele, D., & Princiotta, D. (2008). Attachment and empathy as predictors of roles as defenders or outsiders in bullying interactions. *Journal of School Psychology, 46,* 687-703. doi: 10.1016/j.jsp.2008.06.002

Nigg, J., Martel, M.M., & Nikolas, M., & Casey, B.J. (2010). Intersection of emotion and cognition in developmental psychopathology. In S. D. Calkins and M. A. Bell (Eds.), *Child Development and the Intersection of Emotion and Cognition* (pp. 225-245). Washington, D.C.: American Psychological Association.

Olweus, D. (1980). Familial and temperamental determinants of aggressive behavior in adolescent boys: A causal analysis. *Developmental Psychology, 16,* 644-660. doi: 10.1037/0012-1649.16.6.644

Olweus, D. (1991). Bully/victim problems among schoolchildren: Basic facts and effects of a school based intervention program. In D. J. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 411-448). Hillsdale, NJ: Lawrence Erlbaum Associates.

Olweus, D. (1993). *Bullying at school: What we know and what we can do: Understanding children's worlds.* Malden: Blackwell Publishing.

Olweus, D. (1996). *The Revised Olweus Bullying* Q*uestionnaire*. Mimeo. Bergen, Norway: Research Center for Health Promotion (HEMIL), University of Bergen, N-5020 Bergen, Norway.

Palme, E. J., & Thakordas, V. (2005). Relationship between bullying and scores on the Buss-Perry Aggression Questionnaire among imprisoned male offenders. *Aggressive Behavior, 31,* 56-66. doi: 10.1002/1b.20072

Panfile, T. M., & Laible, D. J. (2012). Attachment security and child's empathy: The mediating role of emotion regulation. *Merrill-Palmer Quarterly, 58,* 1-21. doi: 10.1353/mpq.2012.0003

Pasco Fearon, R., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., Lapsley, A., & Roisman, G. I. (2010). The significance of insecure attachment and disorganization in the development of children's externalizing behavior: A meta-analytic study. *Child Development, 81,* 435-456. doi: 10.1111/j.1467-8624.2009.01405.x

Patchin, J. W., & Hinduja, S. (2006). Bullies move beyond the schoolyard: A preliminary look at cyberbullying. *Youth Violence and Juvenile Justice, 4,* 148-169.

Patterson, G. R., DeBaryshe, B., & Ramsey, E. (1990). A developmental perspective on antisocial behavior. *American Psychologist, 44,* 329-335.

Pepler, D., Jiang, D., Craig, W., & Connolly, J. (2008). Developmental trajectories of bullying and associated factors. *Child Development, 79,* 325-338.

Pettit, G. S., & Bates, J. E. (1989). Family interaction patterns and children's behavior problems from infancy to 4 years. *Developmental Psychology, 25,* 413-420. doi: 10.1037/0012-1649.25.3.413

Pettit, G. S., Dodge, K. A., & Brown, M. M. (1988). Early family experience, social problem solving patterns, and children's social competence. *Child Development, 59,* 107-120. doi: 10.2307/1130393

Phares, V., Fields, S., Kamboukos, D., & Lopez, E. (2005). Still looking for poppa. *American Psychologist, 60,* 735-736. doi: 10.1037/0003-066X.60.7.735

Pozzoli, T., Gini, G., & Vieno, A. (2012). The role of individual correlates and class norms in defending and passive bystanding behavior in bullying. A multilevel analysis. *Child Development, 83,* 1917-1931. doi: 10.1111/j.1467-8624.2012.01831.x

Quiggle, N. L., Garber, J., Panak, W. F., & Dodge, K. A. (1992). Social information processing in aggressive and depressed children. *Child Development, 63,* 1305-1320. doi: 10.2307/1131557

Ragatz, L. L., Anderson, R. J., Fremouw, W., & Schwartz, R. (2011). Criminal thinking patterns, aggression styles, and the psychopathic traits of late high school bullies and bully-victims. *Aggressive Behavior, 37,* 145-160. doi: 10.1002/ab.20377

Renken, B., Egeland, B., Marvinney, D., Mangelsdorf, S., & Sroufe, L. A. (1989). Early childhood antecedents of aggression and passive-withdrawal in early elementary school. *Journal of Personality, 57,* 257-281. doi: 10.1111/j.1467-6494.1989.tb00483.x

Renshaw, P. D., & Asher, S. R. (1983). Children's goals and strategies for social interaction. *Merrill-Palmer Quarterly, 29,* 353-374.

Richters, J. E., Waters, E., & Vaughn, B. E. (1988). Empirical classification of infant-mother relationships from interactive behavior and crying during reunion. *Child Development, 59,* 512-522.

Rieffe, C., Camodeca, M., Pouw, L. B. C., Lange, A. M. C., & Stockmann, L. (2012). Don't anger me! Bullying, victimization, and emotion dysregulation in young adolescents with ASD. *European Journal of Developmental Psychology, 9,* 351-370.

Rigby, K. (1998). The relationship between reported health and involvement in bully/victim problems among male and female secondary schoolchildren. *Journal of Health Psychology, 3,* 475-476.

Rigby, K., & Slee, P. (1991). Bullying among Australian school children: Reported behavior and attitudes toward victims. *Journal of Social Psychology, 131,* 615-627. doi: 10.1080/00224545.1991.9924646

Rigby, K., & Smith, P. K. (1991). Bullying among Australian school children: Reported behavior and attitudes toward victims. *Journal of Social Psychology, 131,* 615-627. doi: 10.1080/00224545.1991.9924646

Rigby, K., & Smith, P. K. (2011). Is school bullying really on the rise? *Social Psychology of Education, 14,* 441-455. doi 10.1007/s11218-011-9158-y

Rothbart, M. K., Ahadi, S. A., Hershey, K. L., & Fisher, P. (2001). Investigations of temperament at 3-7 years: The Children's Behavior Questionnaire. *Child Development, 72,* 1394-1408.

Rothbart, M. K., & Bates, J. E., (2006). Temperament. In N. Eisenberg & W. Damon (Eds.), *Handbook of child psychology: Vol. 3, Social, emotional, and personality development (6th ed.).* (pp. 99-166). Hoboken, NJ: John Wiley & Sons, Inc.

Rubin, K. H., Daniels-Beirness, T., & Hayvren, M. (1982). Social and social-cognitive correlates of sociometric status in preschool and kindergarten children. *Canadian Journal of Behavioral Science, 14,* 338-349. doi: 10.1037/h0081268

Rushton, J. P., Brainerd, C. J., & Pressley, M. (1983). Behavioral development and construct validity: The principle of aggregation. *Psychological Bulletin, 94,* 18-38.

Salmivalli, C., & Nieminen, E. (2002). Proactive and reactive aggression among school bullies, victims, and bully-victims. *Aggressive Behavior, 28,* 30-44. doi: 10.1002/ab.90004

Salmivalli, C., & Voeten, M. (2004). Connections between attitudes, group norms, and behaviour in bullying situations. *International Journal of Behavioral Development, 28,* 246-258. doi: 10.1080/01650250344000488

Schwartz, D., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1997). The early socialization of aggressive victims of bullying. *Child Development, 68,* 665-675.

Shaver, P. R., Collins, N., & Clark, C. L. (1996). Attachment styles and internal working models of self and relationship partners. In G. J. O. Fletcher & J. Fitness (Eds.), *Knowledge structures in close relationships: A social psychological approach* (pp. 25-61). Hillsdale, NJ, England: Lawrence Erlbaum Associates.

Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods, 7,* 422-445. doi: 10.1037/1082-989X.7.4.422

Siegel, J. M. (1986). The Multidimensional Anger Inventory. *Journal of Personality and Social Psychology, 51,* 191-200. doi: 10.1037/0022-3514.51.1.191

Slaby, R. G., & Guerra, N. G. (1988). Cognitive mediators of aggression in adolescent offenders: I. Assessment. *Developmental Psychology, 24,* 580-588. doi: 10.1037/0012-1649.24.4.580

Slee, P. T. (1995a). Bullying in the playground: The impact of inter-personal violence on Australian children's perceptions of their play environment. *Children's Environments, 12,* 320-327.

Slee, P. T. (1995b). Bullying: Health concerns of Australian secondary school students. *International Journal of Adolescence and Youth, 5,* 215-224. doi: 10.1080/02673843.1995.9747767

Smith, P. K., Madsen, K. C., & Moody, J. C. (1999). What causes the age decline in reports of being bullied at school? Towards a developmental analysis of risks of being bullied. *Educational Research, 41,* 267-285.

Smith, P. K., & Myron-Wilson, R. (1998). Parenting and school bullying. *Clinical Child Psychology and Psychiatry, 3,* 405-415. doi: 10.1177/1359104598033006

Solberg, M. E., & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive Behavior, 29,* 239-268.

Sroufe, L. A. (1983). Infant caregiver attachment and patterns of adaptation in preschool: The roots of maladaptation and competence. In M. Perlmutter (Ed.), *Minnesota Symposium on Child Psychology: Vol. 16. Development and policy concerning children with special needs* (pp. 41-81). Hillsdale, NJ: Erlbaum.

Sroufe, L. A. (1985). Attachment classification from the perspective of infant-caregiver relationships and infant temperament. *Child Development, 56,* 1-14.

Sroufe, L. A. (1996). Emotional development: The organization of emotional life in the early years. *Cambridge studies in social & emotional development.* New York, NY: Cambridge University Press. doi: 10.1017/CBO9780511527661

Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & Human Development, 7,* 349-367. doi: 10.1080/14616730500365928

Steele, H., Steele, M., & Fonagy, P. (1996). Associations among attachment classifications of mothers, fathers, and their infants. *Child Development, 67,* 5541-555. doi: 10.2307/1131831

Steiger, J. H., & Lind, J. C. (1980). *Statistically-based tests for the number of common factors.* Paper presented at the annual Spring Meeting of the Psychometric Society in Iowa City. May 30, 1980.

Steinberg, M. S., & Dodge, K. A. (1983). Attributional biases in aggressive adolescent boys and girls. *Journal of Social and Clinical Psychology, 1,* 312-321. doi: 10.1521/jscp.1983.1.4.312

Strassberg, Z., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1994). Spanking in the home and children's subsequent aggression toward kindergarten peers. *Development and Psychopathology, 6,* 445-461. doi: 10.1017/S0954579400006040

Sutton, J., Smith, P. K., & Swettenham, J. (1999). Social cognition and bullying: Social inadequacy or skilled manipulation. *British Journal of Developmental Psychology, 17,* 435-450. doi: 10.1348/026151099165384

Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics (5th ed.*). New York: Allyn & Bacon.

Thompson, R. A. (2008). Early attachment and later development: Familiar questions, new answers. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (*2nd ed*.) (pp. 348-365). New York, NY: Guilford Press.

Tomarken, A. J., & Waller, N. G. (2003). Potential problems with "well-fitting" models. *Journal of Abnormal Psychology, 112,* 578-598.

Troy, M., & Sroufe, L. A. (1987). Victimization among preschoolers: Role of attachment relationship history. *Journal of the American Academy of Child & Adolescent Psychiatry, 26,* 166-172. doi: 10.1097/00004583-198703000-00007

Vaillancourt, T., Hymel, S., & McDougall, P. (2003). Bullying is power: Implications for school-based intervention strategies. *Journal of Applied School Psychology, 19,* 157-176. doi: 10.1300/J008v19n02_10

van der Mark, I. L., van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2002). Development of empathy in girls during the second year of life: Associations with parenting, attachment, and temperament. *Social Development, 11,* 451-468. doi: 10.1111/1467-9507.00210

Veenstra, R., Lindenberg, S., Oldehinkel, A. J., De Winter, A. F., Verhulst, F. C., & Ormel, J. (2005). Bullying and victimization in elementary schools: A comparison of bullies, bully/victims, and uninvolved preadolescents. *Developmental Psychology, 41,* 672-682. doi: 10.1037/0012-1649.41.4.672

Wang, J. W., Iannotti, R. J., & Nansel, T. R. (2009). School bullying among adolescents in the United States: Physical, verbal, relational, and cyber. *Journal of Adolescent Health, 45,* 368-275.

Wheeler, V. A., & Ladd, G. W. (1982). Assessment of children's self-efficacy for social interactions with peers. *Developmental Psychology, 18,* 795-805. doi: 10.1037/0012- 1649.18.6.795

Weinfield, N. S., Sroufe, L. A., Egeland, B., & Carlson, E. (2008). Individual differences in infant-caregiver attachment: Conceptual and empirical aspects of security. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (*2nd ed*.) (pp. 348-365). New York, NY: Guilford Press.

Wienke Totura, C. M., Green, A .E., Karver, M. S., & Gesten, E. L. (2009). Multiple informants in the assessment of psychological, behavioral, and academic correlates of bullying and victimization in middle school. *Journal of Adolescence, 32,* 193-211.

Winsper, C., Lereya, T., Zanarini, M., & Wolke, D. (2012). Involvement in bullying and suicide-related behavior at 11 years: A prospective birth cohort study. *Journal of the American Academy of Child and Adolescent Psychiatry, 51,* 271-282. doi: 10.1016/j.jaac.2012.01.001

Wolke, D., Woods, S., Bloomfield, L., & Karstadt, L. (2000). The association between direct and relational bullying and behavior problems among primary school children. *Journal of Child Psychology and Psychiatry, 41,* 989-1002.

Ybarra, M. L., & Mitchell, K. J. (2004). Youth engaging in online harassment: Associations with caregiver-child relationships, Internet use, and personal characteristics. *Journal of Adolescence, 27,* 319-336.

Zahn-Waxler, C., & Radke-Yarrow, M. (1990). The origins of empathic concern. *Motivation and Emotion, 14,* 107-130. doi: 10.1007/BF00991639

Zahn-Waxler, C., Radke-Yarrow, M., & King, R. A. (1979). Child rearing and children's prosocial initiations toward victims of distress. *Child Development, 50,* 319-330. doi: 10.2307/1129406

Ziv, Y., Oppenheim, D., & Sagi-Schwartz, A. (2004). Social information processing in middle childhood: Relations to infant-mother attachment. *Attachment and Human Development, 6,* 327-328.