SOCIAL-COGNITIVE MEDIATORS OF THE LINK BETWEEN SOCIAL-ENVIRONMENTAL RISK FACTORS AND AGGRESSION IN ADOLESCENCE

A Dissertation

Presented to the Faculty of the Graduate School

of Cornell University

in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

by

Catherine Pilcher Bradshaw

August 2004

SOCIAL-COGNITIVE MEDIATORS OF THE LINK BETWEEN SOCIAL-ENVIRONMENTAL RISK FACTORS AND AGGRESSION IN ADOLESCENCE

Catherine Pilcher Bradshaw, Ph.D.

Cornell University 2004

The effect of social-environmental risk factors, such as social rejection and community violence exposure, on aggressive behavior during childhood has been well documented (Dodge et al., 2003; Lynch & Cicchetti, 1998; Margolin & Gordis, 2000), but the specific mechanisms that mediate this association are still unclear. It may be that a set of social-cognitive factors (i.e., general knowledge structures and social information processing) mediates this relation (Dodge et al., 1990). Two studies were conducted to explore the hypothesis that exposure to social-environmental risk factors is associated with aggressive behavior, as mediated by individuals' general views of the self and others, and negatively biased social information processing.

The first study examined the association among general knowledge structures, information processing, and aggression. Data were collected from 125 older adolescents (mean age = 19.9; *SD* = 1.6) regarding their views of self and others, social information processing, aggression, and personality. While it has traditionally been believed that individuals' negative views of themselves are associated with aggression (Baumeister et al., 1996), we observed that there was a stronger link between overt aggression and negative views of others. This relation was mediated by negatively biased social information processing.

The second study examined the influence of community violence exposure and social rejection by parents and peers on aggression during adolescence. Data were collected from 184 suburban adolescents (mean age = 14.97, *SD* = .84) and their homeroom teachers regarding the youths' social relationships, general knowledge

structures, social information processing, and relationally and physically aggressive behavior. Analyses with structural equation modeling indicated that the effect of these two social-environmental risk factors on aggression was partially mediated by negatively biased social-cognitive factors. Social rejection was more closely associated with negative general knowledge structures, which is consistent with attachment theory's (Bowlby, 1973) emphasis on the link between social relationships and internal working models of the self and others. Violence exposure was more closely related to biased social information processing, which is consistent with social learning theory (Bandura, 1973; Huesmann, 1988), whereby witnessing violence influences beliefs regarding the appropriateness of aggression. Implications for youth violence prevention and intervention are discussed.

BIOGRAPHICAL SKETCH

Catherine Pilcher Bradshaw was born on May 24, 1975 in Roanoke, Virginia. She attended North Cross School for the first through twelfth grades. She received a bachelor's degree in psychology in 1997 from the University of Richmond. In 1999, she received a master's degree in counseling and guidance from the University of Georgia. She received a doctorate in developmental psychology in 2004 from Cornell University. While at Cornell, she held predoctoral fellowships with the National Consortium on Violence Research and the National Institute of Justice. Her research focuses on the development of aggressive and problem behaviors in childhood and adolescence. In August 2004, she will begin an Assistant Professorship in the Department of Mental Health in the School of Public Health at Johns Hopkins University.

To my friends and family,

for their support during my graduate training

ACKNOWLEDGEMENTS

This research was supported by predoctoral fellowships from the National Consortium on Violence Research, the National Institute of Justice, and the Flora Rose Fellowship Fund at Cornell University. Additional support was provided by the Family Life Development Center, the Department of Human Development, and the College of Human Ecology at Cornell.

I would like to thank my special committee for their help and support throughout my doctoral training and the writing of this dissertation. Jim Garbarino served as my committee chairperson. He provided considerable support for me and my research projects. He helped me weave together my interests in aggression, child maltreatment, intervention, and the ecology of human development and create a series of studies to address these issues. Stephen Hamilton supported my development as an applied researcher and encouraged me to pursue my interests in interdisciplinary research. Cindy Hazan helped me make numerous decisions regarding the details of the dissertation study, think more broadly about my research projects, improve my writing skills, and develop the confidence to become an independent researcher. Thank you all for serving as mentors and members of my doctoral committee.

I have benefited greatly from the help of three wonderful Cornell undergraduate research assistants. Katherine Paz provided assistance with data collection and entry for the second paper during the early stage of this project. Sarah Jensen provided invaluable assistance with several aspects of this research. She entered data for papers two and three, assisted in the development of measures for paper three, edited drafts of grant proposals, and co-presented three posters at conferences using these data. Katrina Davy provided the much needed assistance during the final stage of this project by entering and coding data for the third paper.

She also edited several drafts of manuscripts resulting from these studies. I also wish to thank the students who coded data for this project, including the research assistants from Dr. Hazan's lab (i.e., the Love Lab). I would like to thank Karen Grace-Martin for statistical assistance and Lyscha Marcynyszyn who taught me how to use the AMOS software. I also appreciate the valuable comments on papers one and three provided by the participants of the Human Development Writing Group. Peter Farley, Donna Stone, and George Taylor helped me manage the financial aspects of this study. Liz Herrik and Principal Terry MacNabb were essential for gaining access to the school and students to conduct study three. I could not have done that study without their help and support. I also wish to thank the 184 students and 8 teachers who participated in the study.

Several people have been instrumental in my development throughout graduate school. Drs. Georgia Calhoun and Brian Glaser at the University of Georgia encouraged me to spread my wings, but have always welcomed me back. I appreciate their continued support and respect. Dr. Cindy Hazan has been critical in my doctoral training. In addition to the numerous Tuesday evenings she spent helping me become a better writer, she modeled the role of an ideal mentor and set expectations that I strive to live up to. I could not have completed this study without her support, guidance, and encouragement. I would also like to thank Drs. Steven Robertson and Henry Ricciuti who were influential in my becoming a developmental psychologist. They, along with Cindy Hazan, are a valuable resource for all Human Development graduate students.

I received tremendous support from several friends and family members throughout my graduate training. Sarah Watamura provided invaluable advice, stability, and on occasion, food, clothing, and shelter. She was my role model, my closest friend, and my secure base. I also appreciate the social-emotional support

provided by my good friends and colleagues, Steven Mock, Dave Zielinski, Katrin Mueller-Johnson, David Battin, Nurit Gur-Yaish, Joe Vorrasi, and Keith Watamura. I am thankful for the support and love of my parents, as well as my sister Holly and "fabulous" Elizabeth. Finally, I would like to acknowledge the tremendous support provided by my partner and husband Matt McCaughey. He made numerous sacrifices for my graduate training, but always provided unconditional love for me and unwavering support for my aspirations.

TABLE OF CONTENTS

LIST OF TABLES

PAPER TWO

PAPER THREE

LIST OF FIGURES

PAPER TWO

PAPER THREE

PAPER ONE

Social Cognition as a Mediator of the Influence of Family and Community Violence on Adolescent Development: Implications for Intervention

Abstract

Several studies have shown that exposure to family and community violence during childhood and adolescence is associated with an increased risk for development of externalizing behavior problems, but less is known about specific mechanisms which mediate this relation. Variations in social cognition serve as one possible mechanism by which these environmental experiences influence aggressive behavior during adolescence. Children who have been maltreated tend to display negatively biased social-cognitive processing styles, which may in turn increase their likelihood of reacting aggressively in ambiguous social situations. Similarly, witnessing community violence is associated with aspects of social cognition, including beliefs that support aggressive responses to threat. Recent studies also suggest that exposure to extreme forms of stress and violence can produce changes in children's neurobiology, which may increase their hypersensitivity and reactivity to interpersonal threat. Some of the strongest evidence of the role of social cognition as a mechanism in this association comes from intervention studies that reduced aggressive behavior by targeting negatively biased social-cognitive processing styles.

INTRODUCTION

Over the last 30 years, numerous advances have been made in identifying factors that increase the risk for the development of problems with aggression. These factors typically include demographic risks, such as being male and from a low SES or single-parent family, as well as exposure to environmental risks, such as child maltreatment and community violence (for a review see Loeber & Farrington, 2000). However, less is known about *how* these risks operate. We suggest that the latter group of environmental risk factors influences aggressive behavior by affecting the way individuals interpret social situations and decide how to respond. This type of "risky thinking" is common among aggressive adolescents (Steinberg, in press) and is the focus of our present investigation.

This chapter examines the effects of community and family violence on aggressive behavior, as mediated by aspects of social cognition and decision-making. We begin with a brief review of some of the developmental changes occurring during adolescence that are relevant to the onset and persistence of aggressive and violent behavior, and follow with a summary of the research on social cognition. Drawing upon findings from psychological, psychobiological, and neurological research, we discuss how maltreatment experiences and community violence exposure may affect some children's emotional and physiological reactivity to stress and interpersonal threat. We conclude with an overview of selected prevention and intervention strategies that have been shown to be effective at breaking the link between violence exposure and aggressive behavior.

YOUTH VIOLENCE AND ADOLESCENT DEVELOPMENT

Adolescence is a key period in the study of violent and aggressive behavior. Self-report studies indicate that approximately 25% of all males in the U.S. commit at least one act of serious violence before their 18th birthday, and the rates of nonviolent

offending are even higher (Elliot, 1994). Both self-report and arrest data indicate that there is a peak in offending beginning around age 16 or 17 and extending until about age 25. Although the overall level of offending fluctuates, the age-crime pattern holds relatively stable (Snyder & Sickmund, 1999). Equally important from a public health perspective is the tendency of young offenders to victimize other young people; approximately half of the victims of juvenile homicide offenders are between the ages of 13 and 24 (Snyder & Sickmund, 1999). These findings do not, however, imply that aggression and violent behavior are unique to adolescence. In fact, a significant portion of individuals who exhibit aggressive behaviors during adolescence also demonstrated disruptive and problem behaviors in early childhood (Moffitt, 1993; Olweus, 1979). These individuals with an early onset of problem behaviors tend to present the most serious challenges for intervention programs (Moffitt, 1993). Adolescence typically brings about an intensification of problems that were present in childhood.

There are several developmental changes that likely increase adolescents' risk for committing crimes and/or being victimized. Some changes are physical, including the increased muscle mass associated with pubertal maturation that results in adolescents posing a greater physical threat than children. Other changes occur on a social-emotional level, such as in regulating emotions and negotiating relationships with peers and parents. For example, parents often face numerous and more difficult challenges in monitoring their children and providing consistent discipline to their adolescent offspring (Kerr & Stattin, 2000). There is also a noticeable shift in the type and quality of relationships between adolescents and their peers; youth spend more time, much of which is unsupervised, with their peers during adolescence than during childhood (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996). In addition, adolescents have greater access to potential instruments of harm, such as drugs,

alcohol, and weapons (Fagan & Wilkinson, 1998). This is particularly disconcerting considering that the status of brain maturation during this developmental phase predisposes them to act impulsively and without considering long-term consequences of their behavior. Adolescents' neurobiological tendency toward impulsivity and risky thinking is amplified in the presence of peers (Steinberg, in press), completing the circle that connects the psychological, social, and biological issues in adolescence.

THE LINK BETWEEN VIOLENCE EXPOSURE AND AGGRESSION

As noted above, the effect of child maltreatment and community violence exposure on the development of externalizing behavior problems is well documented (for reviews see Garbarino, 2001; Lynch & Cicchetti, 1998; Margolin & Gordis, 2000). While there are likely multiple factors that mediate this association, a growing body of empirical and theoretical literature suggests that these experiences may influence aggression through their effect on social-cognitive factors (Dodge, Bates, & Pettit, 1990).

Social Cognition

Social cognition is broadly defined as the way people make sense of and respond to their social world (Kunda, 1999). An important component of social cognition is *general knowledge structures*. These are individuals' views of themselves, other people, and the world in general. Social psychologists often refer to these knowledge structures as social schemas (Kunda, 1999). A second component of social cognition is *social information processing*. This includes the way individuals perceive situations, make judgments about other people's intents or motives, and make decisions about how to respond in social situations (Crick & Dodge, 1994). Many of these sense-making and decision-making activities happen automatically, without conscious awareness (Baldwin, 1992).

The relation between social cognition and youth violence is quite evident. Much of the fighting and aggression among adolescents and young adults occurs in response to some type of insult or conflict that escalates into a physical altercation (Felson, 1993; Pettit, 1997). For example, consider a crowded middle school hallway where two boys collide. An aggressive youth will likely interpret the collision as an intentional act or challenge, and thus respond aggressively. In contrast, a non-aggressive youth will likely interpret the collision as an accident, and thus is less likely to respond aggressively. In fact, several studies show that aggressive children process these types of ambiguous social interactions differently than non-aggressive children, for they perceive, interpret, and make decisions in a ways that increase the likelihood of aggression (Crick & Dodge, 1994).

Social Information Processing and Aggression

Dodge and colleagues (Crick & Dodge, 1994; Dodge, Pettit, McClaskey, & Brown, 1986) proposed a series of processing biases which aggressive individuals tend to demonstrate in ambiguous social situations, thereby increasing the likelihood of violent behavior. Aggressive children tend to be hypersensitive to cues of threat, to selectively attend to aggressive cues, and to overlook other situational factors that may have influenced the other person's behavior. They have a well developed hostile attribution bias, which influences their interpretation of the situation, such that they infer greater hostility in other people's ambiguous behavior. They also tend to have a large repertoire of aggressive responses which can be enacted, and believe aggressive responses to be more effective at obtaining the desired goal than prosocial ones (Perry, Perry, & Rasmussen, 1986).

A meta-analysis of over 30 studies indicated that these processing biases have a moderate effect on children and adolescents' aggressive behavior, as reported by peers, parents, and/or teachers (i.e. d =.41; Yoon, Hughes, Gaur, & Thompson, 1999).

A similar association has been shown between biased information-processing and researchers' observations of aggressive behavior in naturalistic settings (Schwartz et al., 1998). Even after controlling for intellectual abilities, the relation between biased processing and aggressive behavior is significant (Lochman & Dodge, 1994).

While most of the research on biased information processing styles has focused on younger children, a longitudinal study that followed nearly 600 high-risk children from around age five into adolescence indicates that aggressive social-cognitive processing styles persist into early adolescence, and continue to be associated with aggression, even after controlling for prior behavior problems (Fontaine, Burks, & Dodge, 2002; Zelli, Dodge, Lochman, & Laird, 1999). Cross-sectional studies indicate that biased processing styles are associated with aggressive behavior in late adolescence and early adulthood (Bradshaw & Hazan, 2004; Dill, Anderson, Anderson, & Deuser, 1997). Less clear is the source of these negatively biased social-cognitive processing styles.

Maltreatment and Social Cognition

Previous research has lacked a focus on the development of biased processing styles (Crick & Dodge, 1994), however theoretical literature suggests that experiences during the first few years of life influence the development of a negatively biased perceptual style (Bowlby, 1973). Some empirical support for this comes from research indicating that children who have been maltreated are at greater risk for displaying biased cognitive processing styles, including a hostile attribution bias, a larger repertoire of aggressive behaviors, and beliefs that support or justify aggressive responses to threat (Dodge et al., 1990; Dodge, Pettit, Bates, & Valente, 1995). It is likely that general knowledge structures of the self and others play a role in the processing of social information in ambiguous and potentially threatening situations (Burks, Laird, Dodge, Pettit, & Bates, 1999).

General Knowledge Structures and Aggression

Attachment theory (Bowlby, 1973) asserts that children develop general views of themselves and others (i.e., internal working models) in response to experiences with primary caregivers during early childhood. Specifically, these views of self and other develop as a result of the responsiveness and treatment by the primary caregiver. From these early attachment experiences, the child concludes whether or not other people generally respond to calls for support and comfort, are dependable, and will be there when needed, and infers whether or not she/he is worthy of support from others (Bowlby, 1973). It is hypothesized that under conditions of inconsistent care, severe disciplinary practices, or neglect children develop negative views of self and others (Cicchetti & Toth, 1995).

Numerous studies have linked maltreatment experiences with insecure attachments (i.e., negative views of self and/or others). Whereas the rate of insecure attachment among non-maltreated children is typically around 30% (Cicchetti & Toth, 1995), approximately 90% of maltreated children have insecure attachment styles (Carlson, Cicchetti, Barnett, & Braunwald, 1989). The type of maltreatment experience (i.e., physical abuse versus neglect) does have an effect on the specific insecure attachment formed. For example, approximately 80% of physically abused children develop a disorganized/disoriented attachment pattern – which is the most extreme category of insecure attachments and rare in normative samples (for a reviews see Carlson et al., 1989; Cicchetti & Toth, 1995; vanIJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999).

At an early age, maltreated children often demonstrate problems with emotion regulation, expression, and comprehension, which may serve as precursors to more serious psychopathological disorders, such as Conduct Disorder or Major Depressive Disorder (Camras, Sachs-Alter, & Ribordy, 1996; Pollak, Cicchetti, Hornung, & Reed,

2000). It has also been found that children selectively attend to information that is consistent with their attachment style (Kirsh & Cassidy, 1997), and those with insecure attachment styles are more likely to infer hostility in ambiguous situations than securely attached children (Cassidy, Kirsh, Scolton, & Parke, 1996). A related line of research initiated by Feldman and Downey (1994) indicates that a heightened sensitivity to rejection is a common consequence of maltreatment in childhood. These associations are complex and interactive, such that an insecure child often anticipates, is particularly sensitive to, and may even elicit negative reactions from adults and peers (Rieder & Cicchetti, 1989).

The social-cognitive biases associated with maltreatment vary depending on the severity of the abuse, the pattern of insecure attachment, and the co-occurrence of other risk factors (Garbarino & Eckenrode, 1997). Maltreated children, particularly those from low-SES families, are at risk for delayed social development and difficulty forming a positive self-concept. There is also a great deal of research indicating that maltreated children display less social competence and poorer problem-solving skills than do non-maltreated children (Cicchetti & Toth, 1995; Myers, Berliner, Briere, Hendrix, & Reid, 2002). While most research linking social-cognitive processing and maltreatment has focused on harsh physical punishment by parents (Dodge et al., 1990; Dodge et al., 1995), there appears to be a similar effect for psychological maltreatment and rejection by parents (Bradshaw, 2004).

In sum, negative attachment experiences occurring early in life adversely affect the development of views of self and/or others, as well as the processing of social interactions, thereby increasing the likelihood of aggressive responses to threat. Taken together, these findings provide support for social cognition as a mechanism by which maltreatment experiences influence aggressive behavior in adolescence (Dodge et al.,

1990, 1995). In the following sections, we examine more closely the role of views of self and others in aggression and information processing.

View of self. The association between individuals' self-views and aggression has been the focus of numerous empirical inquires, and also of debate. While the traditional view has been that aggressive individuals possess negative self-views (i.e., low self-esteem), recent reviews of the literature (e.g., Baumeister, 2001; Baumeister, Smart, & Boden, 1996) have proposed that the opposite might be true. Anecdotal evidence from studies of aggressive criminals, psychopaths, and gang members contradicts the low self-esteem-leads-to-aggression theory. Clinical observations and studies of incarcerated youth and adults indicate that they typically *present* with an inflated sense of self (Garbarino, 1999; Gilligan, 1996; Hare, 1996); these individuals often describe themselves as being particularly attractive and popular. Similar findings come from studies of school-age bullies suggesting these youth do not lack self-esteem (Olweus, 1992). Recent research by Rose, Swenson, and Waller (2004) indicates that the popularity of aggressive adolescents (as rated by other youth) is relatively high, even when and if other youth do not like them. While younger physically aggressive children tend to be rejected because their behavior is perceived as aversive (Coie & Dodge, 1988; Dodge, Coie, & Brakke, 1982), it appears that the opposite might be true for social or relational aggression during adolescence. Perhaps popularity during adolescence taps into a general respect for power that results in other youth holding relationally aggressive adolescents in a favorable regard (Rose et al., 2004).

These ambiguous findings on the role of self-esteem have led researchers to consider related factors, such as narcissism (Baumeister et al., 1996; Kernis, & Sun, 1994). Narcissists are typically characterized as having an inflated or grandiose view of the self, using strategies to maintain their favorable self-concept (possibly at the

expense of others), lacking in empathy, having relationships that are low in commitment, warmth, and caring, demonstrating an exaggerated sense of entitlement and an exploitative attitude towards others, and responding defensively and aggressively to critical evaluation from others (Baumeister, 1999; Campbell, Rudich, & Sedikides, 2002). Many of these narcissistic characteristics are readily observed in aggressive males, such as school bullies, psychopaths, and members of street gangs (Anderson, 1999; Garbarino, 1999; Gilligan, 1996; Hare, 1999), as well as in females who engage in relational aggression (Rose et al., 2004).

Narcissism and self-esteem differ most markedly in that self-esteem is associated with communal characteristics, such as morality and agreeableness, whereas narcissism is associated with exploitation and self-absorption (Campbell et al., 2002). Most psychoanalytic theories posit that narcissists actually develop a thin shell of false high self-esteem to protect a tender, low self-esteem core (Kernberg, 1975; Kohut, 1971). Unfortunately, this "veneer theory" is difficult to test empirically, for narcissists typically score high on self-esteem measures (Baumeister et al., 1996; Rhodewalt & Morf, 1995). This may be because they truly have high self-esteem or perhaps because they have adopted the role of a person with high self-regard, and thus present themselves in ways that are consistent with this false-persona.

A series of laboratory studies conducted by Bushman and Baumeister (1998) empirically examined the associations among self-esteem, narcissism, and aggressive responses to ego threats. They found that narcissism was a better predictor of aggression than was self-esteem. Furthermore, young adults who were high in narcissism were more aggressive in response to the ego threats than those who were low in narcissism (Bushman & Baumeister, 1998). In a similar vein, Kernis and colleagues (Kernis, Cornell, Sun, Berry, & Harlow, 1993; Kernis, Grannemann, & Barclay, 1989) examined how fluctuations in the level of self-esteem were associated

with aggression in normative young adults. Participants were prompted by beepers to record their views of self, moods, and behaviors at various points throughout the day. In comparison to individuals with stable views of self, those with high, but unstable (fluctuating) self-esteem tended to report higher levels of anger, hostility, and defensiveness throughout the day (Kernis et al., 1989) and in response to ego threats and interpersonal rejection (Kernis et al., 1993).

These findings on high but unstable self-esteem provide some indication as to why aggressive people may report having a favorable self-concept on pencil and paper measures; in a normal or non-threatening situation, they may in fact possess a view of self that is high, but unstable. However, they are particularly vulnerable or sensitive to interpersonal rejection or threat, which triggers an affective and possibly physically aggressive response.

View of others. Compared to the amount of research on self-views and aggression, relatively few studies have examined the role of views regarding other people. Some evidence for the importance of views about others comes from research on a conceptually related factor - empathy. Empathy is defined as the ability to recognize, comprehend, and experience other people's emotions (Nezlek, Feist, Wilson, & Plesko, 2001). The cognitive component of empathy (i.e., cognitive social insight; Bryant, 1982) allows for an accurate assessment of other people's intentions (Ellis, 1982; Mehrabian & Epstein, 1972) and bears close resemblance to the perspective-taking necessary for effective processing of social interactions, including assessing other people's intentions.

Another component of social cognition that seems relevant to view of others is the general beliefs about aggression aspect of the social information processing model. This taps into whether the person thinks it is appropriate to respond aggressively to perceived threats, such as thinking it is justified and normative to hit a person who

makes one angry (Huesmann, 1988; Slaby & Guerra, 1990). These general beliefs about the acceptability of aggression seem contingent on moral reasoning and empathic ability. While it is possible that aggressive individuals have the ability to understand emotions, they may choose to overlook other people's feelings in favor of competitive or self-benefiting goals. Evidence of the latter comes from studies showing that aggressive children are less likely to interpret ambiguous interactions as being hostile when carefully instructed by an adult to take their time and thoroughly consider alternate interpretations (Crick & Dodge, 1994).

Not surprisingly, studies have shown that both empathy and moral reasoning are associated with prosocial behavior (Cohen & Strayer, 1996; Eisenberg & Miller, 1987; Ellis, 1982). Whereas aggressive individuals have hostile views of others and do not give the provocateur the benefit of the doubt, prosocial individuals appear to have a benign bias that helps to buffer or soothe ambiguous or potentially aggressive interactions (Nelson & Crick, 1999). Prosocial youth have developed the moral and cognitive skills that allow them to empathize with others, even a potential provocateur in conflictual situations. This benign bias demonstrated by prosocial children may gain significance with age. As children develop into adolescents and young adults, their peer relations become more important, and thus there is a greater emphasis on maintaining social relationships than on retaliation (Nelson & Crick, 1999).

The few extant studies examining the association between views of others and aggression indicate that aggressive children (Burks, Dodge, Price, & Laird, 1999; Burks, Laird et al., 1999) and young adults (Bradshaw & Hazan, 2004) possess more negative views of others than do non-aggressive individuals. These studies also indicate that having negative views of others is associated with negatively biased information processing, which in turn contributes to physical and verbal aggression. These findings suggest that youth with negative views of others may be more sensitive

to, or possibly constantly searching for, information that is consistent with and confirms their hostile expectations of others' behavior toward them (Baldwin, 1992). To fully evaluate the negative bias of these children and youth, it is essential to understand the "objective" character of their social worlds. Their negativity may be well founded in their particular experience, in the family and community. For example, actual experiences of discrimination based on racism or classism may alter children's views of themselves and of other people, and possibly influence their processing styles.

Examining the views of self and the views of other in isolation may not prove as informative as the combination of these views (Baldwin, 1992; Bradshaw & Hazan, 2004). According to relational schema theory (Baldwin, 1992, 1995), the combination of views of self and others influences the way people interpret, organize, and respond to social information. Taken together, these findings suggest that aggressive individuals possess negative views of others and possibly themselves, which in turn increases their sensitivity to interpersonal threats and insults. While Bowlby (1973) argues that views of self and others are likely to be related, Griffin and Bartholomew (1994) contend that they are orthogonal.

Although biased processing patterns are more common among maltreated children, it is important to remember that only a small portion of abused children display antisocial personalities and behavior problems. Some are more likely to internalize these experiences whereas approximately a third of all maltreated children display no significant adjustment problems (Werner, 2000; Widom, 1997). Furthermore, different forms of maltreatment (e.g., physical abuse, neglect, psychological maltreatment) have been associated with slightly different developmental outcomes (see Meyers et al., 2002). It is not clear why the developmental trajectories differ, however it is likely that biological factors, such as

physiological reactivity (Perry, 1997), temperament (Raine, 2002; Raine, Brennan, & Mednick, 1997), and genetics (Caspi et al., 2002) play a significant role. We briefly consider how aspects of physiological reactivity are associated with social cognition, aggression, and extreme environmental experiences.

Physiological Aspects of Social Cognition

The differential reactivity of the emotional and social-cognitive systems among maltreated individuals may be affected by physiological influences (van der Kolk, 1996). This is likely the case for maltreated children who have developed symptoms of Post-Traumatic Stress Disorder (PTSD), such as hypervigilance, an exaggerated startle response, anxiety, and emotional detachment from others (American Psychiatric Association, 1994). They may respond defensively or overly aggressively to sensory cues of possible danger (e.g., a loud noise; Perry, 1997), social-emotional cues of threat (e.g., ambiguous facial expressions; Pollak & Tolley-Schell, 2003), or cues of interpersonal rejection (e.g., information they perceive is consistent with their negative views of the self or others; Baldwin, 1992; Cicchetti & Toth, 1995).

Their hypersensitivity and hyperreactivity is experienced cognitively, emotionally, and physiologically. On a neurological level, specific pathways form as a consequence of the maltreatment experiences. These connections are easily activated and reinforced by information that may be reminiscent of the early maltreatment experiences, such as cues of danger or rejection (Perry, Pollard, Blakley, Baker, & Vigilante, 1995). With repeated exposure, cue detection and impulse transmission becomes faster and somewhat automatic, thus fortifying the connection between the physical or social-emotional cues and the individual's behavioral response - much like the process of canalization (Waddington, 1957). At an extreme point, it may result in functional autonomy or "kindling", whereby the original stimulus either is no longer

needed or only a very low level of the stimulus is needed to produce the response (Perry et al., 1995).

Numerous studies have shown that abuse poses a greater risk when experienced during childhood than adolescence (Cicchetti & Toth, 1995; Davidson & Smith, 1990; Keiley, Howe, Dodge, Bates, & Pettit, 2001). For example, a study by Davidson and Smith (1990) found that children who were exposed to traumatic events before age 11 were three times more likely to develop PTSD than children over age 12. This vulnerability to stress and trauma during childhood may be related to brain development. The brain undergoes significant growth and organization during childhood, and trauma during this sensitive time can result in enduring and potentially immutable changes (Perry et al., 1995). Whereas there is increased branching of the neuron dendrites during early childhood, there is a conservative shift toward enhancing the most commonly utilized connections (i.e., increased mylination) and cutting of underutilized connections (i.e., dendritic pruning) during adolescence (Geidd, in press; Luna, in press). The timing of this shift in the type of development occurring in the brain roughly coincides with the theorized "crystallization" of social cognitive processing, including views of the self and others (Bowlby, 1973).

Studies on the neurobiology of maltreated children also indicate that physical abuse is associated with an increased incidence of brain damage, likely a direct result of the physical injuries sustained (Lewis, Pincus, Bard, & Richardson, 1988). Maltreatment may alter hypothalamic–pituitary–adrenal (HPA) axis functioning (Cicchetti & Rogosch, 2001; Gunnar & Donzella, 2002; Hart, Gunnar, & Cicchetti, 1995; Pynoos, Steinberg, Ornitz, & Goenjian, 1997). The HPA axis is one of the physiological systems involved in facilitating cognitive, emotional, behavioral, and metabolic responses to threat and stressful conditions. Chronic activation of the HPA

axis may contribute to physical changes in the brain and impairments in emotional and cognitive functioning (Cicchetti & Rogosch, 2001; Golier & Yehuda, 1998).

The response of the HPA axis to stress is complex; when experiencing chronic stress some individuals appear to remain at high levels of HPA activation whereas others tend to down-regulate the HPA system, thereby adapting to the stress and reducing the allostatic load (Schulkin, Gold, & McEwen, 1998). Although the response of the HPA axis to chronic stress and interpersonal threat is still being elucidated (Gunnar & Donzella, 2002), it is likely that the level of activation of the HPA axis is associated with emotional reactivity and social cognitive processing.

Examining another aspect of children's neurophysiology, Pollak and colleagues (e.g., Pollak, Cicchettit, Hornung, & Reed, 2000; Pollak & Tolley-Schell, 2003) have shown that maltreated children are both cognitively and physiologically sensitive to certain emotionally-salient social cues. Specifically, physically abused children tend to display increased sensitivity toward the detection of emotional cues (in facial expressions) of anger than non-maltreated children, as indicated by reactivity of the central nervous system (i.e., ERP component P3b; Pollak & Tolley-Schell, 2003). Interestingly, whereas physically abused children were more sensitive to expressions of anger, the neglected children displayed a general difficulty discriminating emotions across all facial expressions (Pollak et al., 2000). It is hypothesized that the physically maltreated children develop sensitivity to expressions of anger as an adaptive response to their abusive environments. The slightest cue of anger signals that violence may be imminent. In contrast to the non-maltreated and abused children, neglected children have experienced less overall social interaction – both positive and negative. Consequently, they have difficult reading any type of emotion, except perhaps sadness (Pollak et al., 2000).

This research on maltreated children's physiological reactions to cues of anger or threat is consistent with behavioral data indicating a link between maltreatment and hyperreactivity to interpersonal threat. Correlational studies indicate that individuals who display a tendency toward reactive or affective aggression are generally impulsive and low in constraint, and likely to respond aggressively to a wide range of ego threatening stimuli (for a review see Spoont, 1992). These findings suggest that people who are high in reactive aggression are also overly sensitive to (or perhaps constantly searching for) ego-threatening stimuli (Spoont, 1992). However, this association between arousal and aggression varies by the type of aggressive behavior.

Reactive versus proactive aggression. Aggression researchers typically distinguish between acts that are reactive, affective, and impulsive versus those that are predatory, callous, and premeditated (Dodge, Lochman, Harnish, & Bates, 1997; Felson, 1993). These two types of aggression appear to differ in terms of etiology, underlying physiology, and developmental course. There is some research that suggests that reactive aggression is associated with high autonomic reactivity (Spoont, 1992), whereas predatory aggression is associated with low autonomic arousal (McBurnett, Layhey, Rathouz, & Loeber, 2000; Raine, Venables, & Mednick, 1997). It also appears that the two groups differ in the type of social-cognitive processing errors they make. The reactively aggressive youth tend to be more hypersensitive to ego threats and respond more emotionally or impulsively, whereas the proactively aggressive youth may aggress because they believe it is an effective way of obtaining material items and social goals, such as controlling others (Dodge et al., 1997).

An example of this disparity in reactivity between different types of aggressors comes from research on adult men who are violent toward their wives. Gottman and colleagues (Gottman, Jacobson, Rusche, & Shotyy, 1995) categorized men into two groups based on their physiological response to marital conflict: Type 1 batterers

demonstrated reductions in heart rates (from baseline) during conflictual interactions, whereas Type 2 batterers evidenced an increase in heart rate (from baseline) (Gottman et al., 1995). The two groups of batterers differed in several ways. In comparison to Type 2 batterers, the Type 1 batterers demonstrated a higher general level of aggression (i.e., toward co-workers and strangers) and (retrospectively) reported witnessing more violence between their own parents. The Type 1 batterers tended to become aggressive when their wives made (reasonable) demands for greater cooperation and intimacy – which suggests a preference for emotional distance from others (Babcock, Jacobson, Gottman, & Yerington, 2000). In contrast, the Type 2 batterers became aggressive when their wives made moves toward independence – which suggests that they felt rejected, jealous, or possibly feared abandonment (Gottman et al., 1995). Together with the research on children, these findings suggest that reactively aggressive individuals display a specific type of social-cognitive bias and a pattern of physiological arousal that is different from individuals who are proactively aggressive (Dodge et al., 1997). Further research is needed to elucidate the factors that influence the development of these two types of aggression.

Community Violence and Social Cognition

We have focused primarily on family violence and maltreatment experiences as risk factors for the development of aggressive behavior, but there is evidence which suggests that exposure to community violence may also play a role. While several studies indicate that exposure to violence in the community or neighborhood is associated with the development of antisocial behavior and other mental health problems (Bell & Jenkins, 1993; Garbarino, 2001; Gorman-Smith & Tolan, 1998), this relation appears to be mediated by aspects of social cognition.

Children exposed to community violence typically experience high levels of anger, withdrawal, sleep disturbances, and declines in academic performance (Bell &

Jenkins, 1993; Osofsky, 1995, 1997; Pynoos & Nader, 1988). Exposure to violence also can desensitize youth to the impact of violence and increase their own use of violence or aggression to resolve problems or express emotions. These reactions are similar to aspects of biased cognitive processing, such as beliefs supporting aggressive responses to threat.

Children do not have to witness violence directly to develop symptoms of traumatic stress. They can feel that their safety is threatened simply after hearing about incidents of violence or learning about them on television through news coverage (Garbarino & deLara, 2002; Omar, 1999). These experiences likely contribute to a belief that the world is a dangerous place and that other people are aggressive or perhaps "out to get them." Adolescents may respond to these types of threat by adopting what they perceive to be "protective behaviors," such as joining a gang or arming themselves with guns or knives (Bell & Jenkins, 1991; Jenkins & Bell, 1997).

Youth with several risk factors (e.g., low SES, single-parent household, parental mental health problems) in combination with few protective factors (e.g., a supportive adult, stable home environment) appear to at the greatest risk for developing problems in response to community violence (Margolin & Gordis, 2000; Osofsky, 1995, 1997; Richters & Martinez, 1993). Age, along with social and cognitive development are other important factors influencing how children respond to community violence (Garbarino, Dubrow, Kostelny, & Pardo, 1992). For example, the effects of community violence can be particularly severe if exposure occurs between childhood and early adolescence (Pynoos et al., 1997).

Only a few empirical studies have examined violence exposure as a possible factor influencing social cognition. One study of incarcerated adolescent males found that witnessing violence was associated with having a large repertoire of aggressive behaviors and beliefs that support aggressive responses to threat (Shahinfar,

Kupersmidt, & Matza, 2001). These associations are consistent with social learning theory, which suggests that children learn that aggression is an acceptable response to threat and imitate aggressive behaviors they have witnessed others commit (Bandura, 1973, 1977). Through repeated exposure to violence, aggression becomes the default or automatic response (Huesmann, 1988; Huesmann & Eron, 1984; Huesmann & Guerra, 1997).

Huesmann (1988; Huesmann & Guerra, 1997) contends that the association between witnessing violence and internalizing beliefs that support and legitimize aggression is an essential aspect of negatively biased information processing. Consequently, children who have witnessed violence may selectively attend to certain cues, misinterpret these cues as being hostile, and automatically respond with aggressive and defensive behaviors rather than participating in reflective decision-making. There is some research indicating that witnessing violence in the media or through video games may influence aspects of social information processing, including the formation of a hostile attribution bias (Anderson & Dill, 2000; Kirsh, 1998; Kirsh, & Olczak, 2002).

Our own research on normative adolescents suggests that community violence exposure is associated with a negative perceptual bias (Bradshaw, 2004). Specifically, witnessing violence was correlated with several aspects of negatively biased information-processing (i.e., hostile attribution bias, accessibility of aggressive cognitions, and beliefs supporting aggressive responses to threat), and marginally significantly correlated with negative views of other people. As described above, the relation between violence exposure and aggressive beliefs is consistent with social learning theory (Bandura, 1973, 1977; Huesmann, 1988). The association among violence exposure, negative views of others, and hostile attribution bias was also expected. We hypothesize that witnessing violence leads children to infer that other

people - and perhaps the world in general - are dangerous, in turn increasing the likelihood of making hostile inferences and responding aggressively to threat (Bradshaw, 2004). Data from youth exposed to higher levels of violence will likely evidence stronger effects on social information processing and negative views of others.

Within this same study, social rejection by parents and peers was associated with both negative general knowledge structures and biased information processing. The finding regarding social rejection is consistent with attachment theory (Bowlby, 1973), whereby rejection experiences are associated with negative views of the self and others. These views in turn affect the way children process social information, and increase the likelihood of aggressive responses to threat. While both social rejection and violence exposure were associated with aggressive behavior, they appear to operate through different aspects of social cognition (Bradshaw, 2004). Additional research is needed to elucidate the aspects of social cognition that are relevant to risk and aggression and to verify the hypothesized causal pathway.

Transactional Nature of Social Cognition

It is easy to see the potential negative repercussions of having a "hair-trigger" tendency to respond aggressively to slight provocation, particularly in social environments in which provocations abound. For aggressive children, their propensity toward violence reflects badly on them; they begin to develop an aggressive and negative reputation among their peers (Dodge et al., 1997). Other children, as well as adults, learn to expect this behavior from the aggressive child and may even begin to respond aggressively towards the child. This in turn reinforces the aggressive child's view of others as hostile (Dodge & Frame, 1982). Furthermore, with time and experience, the aggressive child becomes more adept at responding violently rather than prosocially to provocation. To indicate this reinforcing effect, Crick and Dodge

(1994) revised the early social information processing model by incorporating a cyclical rather than step-wise process.

A similar reinforcing process occurs for negative general knowledge structures developed during childhood. These views of self and others are theorized to develop in response to attachment experiences during early childhood and to stabilize in late adolescence and early adulthood (Bowlby, 1973; Crittenden & Ainsworth, 1989). Although modifiable by social input, these views of self and others may become enduring and difficult to alter. Even when the situation or relationships change and the knowledge structures are no longer accurate, they may remain, guiding individuals' behavior in problematic ways.

In accordance with a transactional perspective (Cicchetti & Lynch, 1995), it is likely that negative general knowledge structures and aggressive behavior reinforce one another, which in turn may contribute to future rejection and validation of negative views of self and/or others (Fontaine et al., 2002). Related research by Downey and colleagues (e.g., Ayduk et al., 2000; Downey & Feldman, 1996) has shown that people who expect rejection from others tend to be overly sensitive to interpersonal cues of rejection –in their relationships with both peers and romantic partners – and often respond in hostile and aggressive ways toward the source of the perceived rejection. Rejection sensitivity has been associated with other adjustment problems, such as insecure attachment, negative emotionality, and an increased likelihood of short, tumultuous relationships (Ayduk et al., 2000).

As suggested above, aggressive children are often rejected, excluded, or otherwise treated badly by their peers because their behavior is perceived to be aversive (Dodge et al., 1982). This rejection likely validates their negative or hostile view of others and limits opportunities for developing positive social skills. Furthermore, heavy exposure to aggressive stimuli, such as violence in the home

(Nasby, Hayden, & DePaulo, 1980), media, or video games (Anderson & Dill, 2000; Huesmann, 1988; Kirsh, 1998), could also reinforce these negative views of others, thereby contributing to the development or stability of aggression. Studies have shown that aggressive children tend to prefer and consume more violent television than less-aggressive children, and they also are more affected by the violent images they view (Bushman, 1995). Taken together, these findings suggest that aggressive individuals create and contribute to situations that escalate the level of violence, which in turn reinforces their own biased processing styles and increases the likelihood of future violence.

The Adaptive Function of a Biased Cognitive Style

Although we have focused primarily on the potential negative consequences of biased cognitive styles, it is important to recognize the adaptive function of these perceptual biases. *These biases are protective, given a context of violence.* Whether in an abusive home or a dangerous neighborhood, it is advantageous for youth to be particularly sensitive to cues of threat and respond by fleeing or protecting the self. This type of adaptation is illustrated in the research summarized above by Pollak et al. (2000) on abused children's hyperreactivity to emotional cues of anger. Because beliefs trump reality, negative perceptual biases can cause problems when they become over-generalized (Baldwin, 1992) or applied in unwarranted situations (Zelli et al., 1999).

Another possible social-cognitive adaptation is the inflated sense of self – whether truthful or as a veneer – that appears to be prevalent in many violent neighborhoods. An example of this phenomenon comes from Elijah Anderson's (1999) ethnographic study of inner-city Philadelphia, entitled *Code of the Street.* Within these violent neighborhoods, "esteem is so precarious that it can be taken away with just a word, and kids are constantly challenged to defend what they have" (p. 95). "To avoid

feeling bad, these kids may lift themselves up by putting others down" (p. 94). Similar trends have been observed in clinical studies of incarcerated adolescents and adults (Garbarino 1999; Gilligan, 1996). There is a zero-sum of respect in these environments, and fleeing in response to threat is often viewed as worse, or even more dangerous than fighting (Tolan, 2001). The best way to prevent this type of aggression would be to improve the environmental conditions so that honor and shame do not hang in such a fine balance.

PROMISING PREVENTION AND INTERVENTION STRATEGIES

The most effective way to prevent youth violence is probably to reduce the overall incidence of child maltreatment in our society. While community-wide primary prevention initiatives have met with some success, other smaller programs that target high-risk mothers have been associated with reductions in rates of abuse and neglect (Garbarino & Eckenrode, 1997). Strategies demonstrating such effects include nurse-home visitation for young, low SES, single-parent mothers (Olds et al., 1998) and training to enhance mothers' sensitivity and responsiveness to their infants (van den Boom, 1994; see also Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003). These types of interventions likely influence the child's social-cognitive processes through effects on the caregiver-child bond. The enhanced caregiving abilities increase the likelihood of the child becoming securely attached (van den Boom, 1994). And as described above, securely attached children are less likely to develop negatively biased social-cognitive processing styles (Cassidy et al., 1996), emotion regulation problems, and problems with aggression (Cicchetti & Toth, 1995; Greenberg, 1999).

With regard to violence exposure, modifying parenting behaviors has been shown to limit exposure to community violence for both children and adolescents (Beyers, Bates, Pettit, & Dodge, 2003). For children who have already been exposed,

one of the best predicators of how children will adapt is how their parents respond to the violence - both emotionally and behaviorally (Garbarino, 1995; Osofsky, 1995; Richters & Martinez, 1993). Thus, adults need to learn to manage their own responses to community violence in ways that model adaptive behaviors and allow them to be emotionally available to the children around them (Garbarino et al., 1992). This emotional and physical shielding of children from violence exposure may reduce their likelihood of developing negatively biased social-cognitive processing styles.

Other prevention strategies include programs that target aspects of social-cognitive processing. Several programs have effectively altered the social-cognitive processing styles in children of varying ages and have demonstrated subsequent reductions in problem behavior. One such program, BrainPower, was developed by Hudley and colleagues (1998) to alter the hostile attribution bias in aggressive elementary school children. The children participated in a series of structured activities that allowed them to practice considering alternative interpretations of other people's behavior in ambiguous situations. This program produced short-term reductions in aggressive behavior, as reported by teachers (Hudley & Friday, 1996).

A similar strategy was used with adolescent males and females incarcerated in a secure facility (Guerra & Slaby, 1990). This program targeted the beliefs supporting aggression aspect of social cognition. Post-intervention reports by the facility staff indicated that there were significant reductions in youths' use of violent behavior; however, there were no differences with regard to recidivism rates approximately two years after their release (Guerra & Slaby, 1990). Given that these youth returned to their typically chaotic and violent home environments, it is perhaps not surprising that a program, which focused solely on individuals factors, produced limited effects.

The Metropolitan Area Child Study (MACS) was developed for children attending "inner-city" and "urban poor" schools and intends to simultaneously affect

the youths' social cognitive style, as well as their school and family environments (Eron et al., 2002). This randomized prevention program was implemented in 16 Chicago-area schools and is one of the largest prevention programs targeting social-cognitive processing styles. The full MACS program provided three levels of intervention for children (i.e., curriculum-based classroom program administered by teachers, small-group training sessions, and family interventions) during early and late elementary school (Huesmann et al., 1996). When implemented early, the intervention demonstrated reductions in aggressive behavior for children who attended the urban poor schools, however there were some iatrogenic effects for participants from inner-city schools (Eron et al., 2002). It is hypothesized that the disorganization, stress, and attitudes supporting violence prevalent in the inner-city schools and communities may have been too extreme and pervasive for the children to have been affected by this level of intervention. Regardless, this program provides additional support for social-cognitive strategies as a promising intervention strategy for children and early adolescents (Eron et al., 2002).

The PATHS (Promoting Alternative THinking Strategies) program also targets aspects of social cognition in elementary school children (Greenberg, Kusché, & Mihalic, 1998). This multi-year school-based program includes lessons and activities which encourage children's recognition and expression of emotions, understanding of the perspectives of others, development of effective problem-solving and decision-making skills, and other prosocial behaviors and conflict-resolution strategies. The PATHS curriculum has been widely-implemented and several studies indicate that it is effective at reducing aggressive behaviors while simultaneously increasing protective behaviors (Greenberg et al., 1998).

The Resolving Conflict Creatively Program (RCCP) is another such program for elementary school children that has demonstrated reductions in youths' aggressive

social cognitions and behaviors (Aber, Brown, & Jones, 2003). The program includes a combination of lessons and activities intended to promote prosocial decision-making, effective conflict resolution strategies, and respect for diversity. A recent study examined the effects of the RCCP intervention on over 11,000 children enrolled in New York City public schools. The effects were greatest for youth who were exposed to the most lessons and program activities, illustrating the importance of intensity and consistency in program implementation (Aber et al., 2003). Taken together, these intervention and prevention studies provide support for the effectiveness of programs that target aspects of social cognition, either directly by affecting the child or indirectly through the parents. These effects, however, appear to be greatest when aspects of the youths' context are considered.

CONCLUSION

While considerable gains have been made in our understanding of the role of social cognition as a mechanism by which family and community violence influence aggressive behavior in adolescence, we also need to know more about possible gender differences in these processes and their effects on different types of aggressive behavior committed by youth. We also need to know more about the variations in social environments that encourage the development of negative and aggressive social cognitions. For example, community violence exposure and maltreatment appear to operate through different aspects of social cognition, but they do share some common influences. Consequently, strategies that target several aspects of social cognition and address contextual issues will likely yield the strongest reductions in problem behavior.

An ecological perspective (Bronfenbrenner, 1979) will be useful for examining how individual factors, such as social cognition and physiological reactivity, influence and are influenced by the family, peer group, and community. The transactional nature

of aggressive behavior is complex and needs to be considered when intervening with aggressive youth. While early prevention of problem behaviors is preferred (Eron, et al., 2002; Yoshikawa, 1994), the research summarized here suggests that adolescence is a sensitive period in human development and may be an opportunity to stem the development of antisocial behavior through interventions that target aspects of social cognition.

References

Aber, J. L., Brown, J. L., & Jones, S. M. (2003). Developmental trajectories toward violence in middle childhood: Course, demographic differences, and response to school-based intervention. *Developmental Psychology, 39*(2), 324-348.

American Psychiatric Association.1994. *Diagnostic and Statistical Manual (4^{th} ed.). [DSM-IV]*. Washington, DC: Author.

Anderson, E. (1999). *Code of the street: Decency, violence, and the moral life of the inner city*. New York: W.W. Norton.

Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology, 78*(4), 772-790.

Ayduk, O., Mendoza-Denton, R., Mischel, W., Downey, G., Peake, P. K., & Rodriguez, M. (2000). Regulating the interpersonal self: Strategic self-regulation for coping with rejection sensitivity. *Journal of Personality and Social Psychology, 79*(5), 776-792.

Babcock, J. C., Jacobson, N. S., Gottman, J. M., & Yerington, T. P. (2000). Attachment, emotional regulation, and the function of marital violence: Differences between secure, preoccupied, and dismissing violent and nonviolent husbands. *Journal of Family Violence, 15*(4), 391-409.

Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., & Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin, 129*(2), 195-215.

Baldwin, M. W. (1992). Relational schemas and the processing of social information. *Psychological Bulletin, 112*, 461-484.

Baldwin, M. W. (1995). Relational schemas and cognition in close relationships. *Journal of Social and Personal Relationships, 12*(4), 547-552.Bandura, A.

(1973). *Aggression: A social learning analysis*. Englewood Clifts, NJ: Prentice Hall.

Bandura, A. (1973). *Aggression: A social learning analysis*. Englewood Clifts, NJ: Prentice Hall.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.

Baumeister, R. F. (1999). *Evil: Inside human violence and cruelty*. New York: Henry Holt.

Baumeister, R. F. (2001). Violent pride: Do people turn violent because of self-hate or self-love? *Scientific American, 284*(4), 96-101.

Baumeister, R. F., Smart, L., & Boden, J., M. (1996). Relation of threatened egotism to violence and aggression: The dark side of high self-esteem. *Psychological Review, 103*(1), 5-33.

Bell, C. C., & E. J. Jenkins. (1991). Traumatic stress and children. *Journal of Health Care for the Poor and Underserved* 2, 175-185.

Bell, C. C., & Jenkins, E. J. (1993). Community violence and children on Chicago's Southside. *Psychiatry, 56*, 46-54.

Beyers, J. M., Bates, J. E., Pettit, G. S., & Dodge, K. A. (2003). Neighborhood structure, parenting processes, and the development of youths' externalizing behaviors: A multilevel analysis. *American Journal of Community Psychology, 31*(1-2), 35-53.

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

Bradshaw, C. (2004). *Social-environmental risk factors and aggression in adolescence: The role of social-cognitive mediators.* Unpublished manuscript. Cornell University, Ithaca.

Bradshaw, C. P., & Hazan, C. (2004). Social cognition as a link between esteem and aggression. Manuscript submitted for publication.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Cambridge, MA: Harvard University of Press.

Bryant, B. K. (1982). An index of empathy for children and adolescents. *Child Development, 53*, 413-425.

Burks, V. S., Dodge, K. A., Price, J. M., & Laird, R. D. (1999). Internal representational models of peers: Implications for the development of problematic behavior. *Developmental Psychology, 35*(3), 802-810.

Burks, V. S., Laird, R. D., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1999). Knowledge structures, social information processing, and children's aggressive behavior. *Social Development, 8*(2), 220-236.

Bushman, B. J. (1995). Moderating role of trait aggressiveness in the effects of violent media on aggression. *Journal of Personality and Social Psychology, 69*(5), 950-960.

Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology, 75*(1), 219-229.

Campbell, W. K., Rudich, E. A., & Sedikides, C. (2002). Narcissism, self-esteem, and the positivity of self-views: Two portraits of self-love. *Personality and Social Psychology Bulletin, 28*(3), 358-368.

Camras, L. A., Sachs-Alter, E., & Ribordy, S. (1996). Emotion understanding in maltreated children: Recognition of facial expressions and integration with other emotion cues. In M. Lewis & M. Sullivan (Eds.), *Emotional development in atypical children* (pp. 203–225). Hillsdale, NJ: Erlbaum.

Carlson, V., Cicchetti, D., Barnett, D., & Braunwald, K. (1989). Disorganized/disoriented attachment relationships in maltreated infants. *Developmental Psychology, 25*(4), 525-531.

Caspi, A., McClay, J., Moffitt, T. E., Mill, J., Martin, J., Craig, I. W., Taylor, A., & Poulton, R. (2002). Role of genotype in the cycle of violence in maltreated children. *Science, 297*, 851-854.

Cassidy, J., Kirsh, S. J., Scolton, K. L., & Parke, R. D. (1996). Attachment and representations of peer relationships. *Developmental Psychology, 32*(5), 892-904.

Cicchetti, D., & Lynch, M. (1995). Failures in the expectable environment and their impact on individual development: The case of child maltreatment. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology* (Vol. 2. Risk, disorder, and adaptation, pp. 32-71). New York: Wiley.

Cicchetti, D., & Rogosch, F. A. (2001). The impact of child maltreatment and psychopathology on neuroendocrine functioning. *Development and Psychopathology, 13*, 783-804.

Cicchetti, D., & Toth, S. L. (1995). Child maltreatment and attachment organization. In S. Goldberg, R. Muir, & J. Kerr (Eds.), *Attachment theory: Social, developmental, and clinical perspectives* (pp. 279-308). Hillsdale, NJ: Analytic Press.

Cohen, D., & Strayer, J. (1996). Empathy in conduct-disordered and comparison youth. *Developmental Psychology, 32*(6), 988-998.

Coie, J. D., & Dodge, K. A. (1988). Multiple sources of data on social behavior and social status in the school: A cross-age comparison. *Child Development, 59*(3), 815-829.

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.

Crittenden, P. M., & Ainsworth, M. (1989). Child maltreatment and attachment theory. In D. Cicchetti & V. Carlson (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect* (pp. 432-463). New York: Cambridge University Press.

Davidson, J., & Smith, R. (1990). Traumatic experiences in psychiatric outpatients. *Journal of Traumatic Stress Studies, 3*(3), 459-475.

Dill, K. E., Anderson, C. A., Anderson, K. B., & Deuser, W. E. (1997). Effects of aggressive personality on social expectations and social perceptions. *Journal of Research in Personality, 31*(2), 272-292.

Dodge, K. A., Bates, J. E., & Pettit, G. S. (1990). Mechanisms in the cycle of violence. *Science, 250*(4988), 1678-1683.

Dodge, K. A., Coie, J. D., & Brakke, N. P. (1982). Behavior patterns of socially rejected and neglected preadolescents: The roles of social approach and aggression. *Journal of Abnormal Child Psychology, 10*(3), 389-409.

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

Dodge, K. A., Lochman, J. E., Harnish, J. D., & Bates, J. E. (1997). Reactive and proactive aggression in school children and psychiatrically impaired chronically assaultive youth. *Journal of Abnormal Psychology, 106*(1), 37-51.

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*(4), 632-643.

Dodge, K. A., Pettit, G. S., McClaskey, C. L., & Brown, M. (1986). Social competence in children, *Monographs of the Society for Research in Child Development* (Vol. 51, 2).

Downey, G., & Feldman, S. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology, 70*, 1327-1343.

Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin, 101*(1), 91-119.

Elliott, D. (1994). Serious violent offenders: Onset, developmental course, and termination - The American Society of Criminology 1993 presidential address. *Criminology, 32*(1), 1-21.

Ellis, P. L. (1982). Empathy: A factor in antisocial behavior. *Journal of Abnormal Child Psychology, 10*(1), 123-133.

Eron, L., Huesmann, R., Spindler, A., Guerra, N., Henry, D., & Tolan, P. (2002). A cognitive-ecological approach to preventing aggression in urban settings: Initial outcomes for high-risk children. *Journal of Consulting and Clinical Psychology, 70*(1), 179-194.

Fagan, J., & Wilkinson, D. L. (1998). Guns, youth violence, and social identity in the inner city. *Crime and justice: A review of research, 24*, 105-188.

Feldman, S., & Downey, G. (1994). Rejection sensitivity as a mediator of the impact of childhood exposure to family violence on adult attachment behavior. *Development and Psychopathology, 6*, 231-247.

Felson, R. B. (1993). Predatory and dispute-related violence: A social interactionist approach. In R. Clarke & M. Felson (Eds.), *Advances in criminological theory: Routine activity and rational choice* (Vol. 5, pp. 103-125). New Brunswick, NJ: Transaction.

Fontaine, R. G., Burks, V. S., & Dodge, K. A. (2002). Response decision processes and externalizing behavior problems in adolescents. *Development and Psychopathology, 14*(1), 107-122.

Garbarino, J. (1995). *Raising children in a socially toxic environment.* San Francisco, CA: Jossey-Bass.

Garbarino, J. (1999). *Lost boys: Why our sons turn violent and how we can save them.* New York: Free Press.

Garbarino, J. (2001). An ecological perspective on the effects of violence on children. *Journal of Community Psychology, 29*(3), 361-378.

Garbarino, J., & deLara, E. (2002). *And words can hurt forever.* New York: Free Press.

Garbarino, J., Dubrow, N., Kostelny, K., & Pardo, C. (1992). *Children in danger: Coping with the consequences of community violence.* San Francisco: Jossey-Bass.

Garbarino J, & Eckenrode, J. (1997). *Understanding abusive families: An Ecological Approach to Theory and Practice.* San Francisco: Jossey-Bass.

Geidd, J. N. (in press). Adolescent brain development: Views from Structural Magnetic Resonance Imaging In R. E. Dahl, A. E. Kelley, & L.P. Spear (Eds.) Adolescent brain development: Vulnerabilities and opportunities. *Annals of the New York Academy of Sciences, 1021.*

Gilligan, J. (1996). *Violence: Reflections on a national epidemic.* New York: Vintage.

Golier, J., & Yehuda, R. (1998). Neuroendocrine activity and memory-related impairments in posttraumatic stress disorder. *Development and Psychopathology, 10*, 857-869.

Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Development and Psychopathology, 10*(1), 101-116.

Gottman, J. M., Jacobson, N. S., Rushe, R. H., & Shortt, J. W. (1995). The relationship between heart rate reactivity, emotionally aggressive behavior, and general violence in batterers. *Journal of Family Psychology, 9*(3), 227-248.

Greenberg, M. T. (1999). Attachment and psychopathology in childhood.

Greenberg, M. T., Kusché, C., & Mihalic, S. F. (1998). *Blueprints for Violence Prevention, Book Ten: Promoting Alternative Thinking Strategies (PATHS).* Boulder, CO: Center for the Study and Prevention of Violence.

Griffin, D. W., & Bartholomew, K. (1994). Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology, 67*(3), 430-445.

Gunnar, M. R., & Donzella, B. (2002). Social regulation of the cortisol levels in early human development. *Psychoneuroendocrinology, 27*(1-2), 199-220.

Hare, R. D. (1999). *Without conscience: The disturbing world of psychopaths among us*. New York: Guilford Press.

Hart, J., Gunnar, M., & Cicchetti, D. (1995). Salivary cortisol in maltreated children: Evidence of relations between neuroendocrine activity and social competence. *Development and Psychopathology, 8*, 201-214.

Hudley, C., Britsch, B., Wakefield, W. D., Smith, T., Demorat, M., & Cho, S. (1998). An attribution retraining program to reduce aggression in elementary school students. *Psychology in the Schools, 35*(3), 271-282.

Hudley, C., & Friday, J. (1996). Attributional bias and reactive aggression. *American Journal of Preventive Medicine, 12*(5, Suppl), 75-81.

Huesmann, L. R. (1988). An information processing model for the development of aggression. *Aggressive Behavior, 14*(1), 13-24.

Huesmann, L. R., & Eron, L. D. (1984). Cognitive processes and the persistence of aggressive behavior. *Aggressive Behavior, 10*(3), 243-251.

Huesmann, L. R., & Guerra, N. G. (1997). Children's normative beliefs about aggression and aggressive behavior. *Journal of Personality and Social Psychology, 72*(2), 408-419.

Huesmann, L. R., Maxwell, C. D., Eron, L., Dalhberg, L. L., Guerra, N. G., Tolan, P. H., VanAcker, R., & Henry, D. (1996). Evaluating a cognitive/ecological program for the prevention of aggression among urban children. *American Journal of Preventive Medicine, 12*(5, Suppl), 120-128.

Jenkins, E. J., & Bell, C. C. (1997). Exposure and response to community violence among children and adolescents. In J. D. Osofsky (Ed.), *Children in a violence society* (pp. 9-31). New York: Guilford.

Keiley, M. K., Howe, T. R., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2001). The timing of child physical maltreatment: A cross-domain growth analysis of impact on adolescent externalizing and internalizing problems. *Development and Psychopathology, 13*, 891-912.

Kernberg, O. (1975). *Borderline conditions and pathological narcissism.* New York: Jason Aronson.

Kernis, M. H., Cornell, D. P., Sun, C., Berry, A., & Harlow, T. (1993). There's more to self-esteem than whether it is high or low: The importance of stability of self-esteem. *Journal of Personality and Social Psychology, 65*(6), 1190-1204.

Kernis, M. H., Grannemann, B. D., & Barclay, L. C. (1989). Stability and level of self-esteem as predictors of anger arousal and hostility. *Journal of Personality and Social Psychology, 56*(6), 1013-1022.

Kernis, M. H., & Sun, C. (1994). Narcissism and reactions to interpersonal feedback. *Journal of Research in Personality, 28*(1), 4-13.

Kerr, M., & Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology, 36*(3), 366-380.

Kirsh, S. J. (1998). Seeing the world through Mortal Kombat-colored glasses: Violence video games and the development of a short-term hostile attribution bias. *Childhood, 5*(2), 177-184.

Kirsh, S. J., & Cassidy, J. (1997). Preschoolers' attention to and memory for attachment-related information. *Child Development, 68*, 1143-1153.

Kirsh, S. J., & Olczak, P. V. (2002). The effects of extremely violent comic books on social information processing. *Journal of Interpersonal Violence, 17*(11), 1160-1178.

Kohut, H. (1971). *Analysis of the self: A systematic approach to the psychoanalytic treatment of narcissistic personality disorders*. New York: International Universities Press.

Kunda, Z. (1999). *Social cognition: Making sense of people*. Boston, MA: MIT Press.

Larson, R. W., Richards, M., H., Moneta, G., Holmbeck, G., & Duckett, E. (1996). Changes in adolescents' daily interactions with their families from ages 10 to 18: Disengagement and transformation. *Developmental Psychology, 32*(4), 744-754.

Lewis, D. O., Pincus, J. H., Bard, B., & Richardson, E. (1988). Neuropsychiatric, psychoeducational, and family characteristics of 14 juveniles condemned to death in the United States. *American Journal of Psychiatry, 145*, 584-589.

Lochman, J. E., & Dodge, K. A. (1994). Social-cognitive processes of severely violent, moderately aggressive, and nonaggressive boys. *Journal of Consulting and Clinical Psychology, 62*(2), 366-374.

Loeber, R., & Farrington, D. P. (2000). Young children who commit crime: Epidemiology, developmental origins, risk factors, early interventions, and policy implications. *Development and Psychopathology, 12*(4), 737-762.

Luna, B. (in press). The emergence of collaborative brain function: fMRI studies investigating the development of response suppression. In R. E. Dahl, A. E. Kelley, & L.P. Spear (Eds.) Adolescent brain development: Vulnerabilities and opportunities. *Annals of the New York Academy of Sciences, 1021.*

Lynch, M., & Cicchetti, D. (1998). An ecological-transactional analysis of children and contexts: The longitudinal interplay among child maltreatment, community violence, and children's symptomatology. *Development and Psychopathology, 10*(2), 235-257.

Margolin, G., & Gordis, A. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology, 51*, 445-479.

McBurnett, K., Lahey, B. B., Rathouz, P. J., & Loeber, R. (2000). Low salivary cortisol and persistent aggression in boys referred for disruptive behavior. *Archives of General Psychiatry, 57*(1), 38-43.

Moffitt, T. E. (1993). Adolescence-limited and life-course persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*(4), 674-701.

Myers, L. Berliner, J. Briere, C. T. Hendrix, C. Jenny, & T. Reid, A (2002), *The APSAC Handbook on Child Maltreatment* (2nd ed.). Thousand Oaks: Sage.

Nasby, W., Hayden, B., & DePaulo, B. M. (1980). Attributional bias among aggressive boys to interpret unambiguous social stimuli as displays of hostility. *Journal of Abnormal Psychology, 89*(3), 459-468.

Nelson, D. A., & Crick, N. R. (1999). Rose-colored glasses: Examining the social information-processing of prosocial young adolescents. *Journal of Early Adolescence, 19*(1), 17-38.

Nezlek, J. B., Feist, G. J., Wilson, C., & Plesko, R. M. (2001). Day-to-day variability in empathy as a function of daily events and mood. *Journal of Research in Personality, 35*, 401-423.

Olds, D., Pettitt, L. M., Robinson, J., Henderson, C., Eckenrode, J., Kitzman, H., Cole, B., & Powers, J. (1998). Reducing risks for antisocial behavior with a program of prenatal and early childhood home visitation. *Journal of Community Psychology, 26*(1), 65-83.

Omar, H. A. (1999). Adolescent violence as viewed by high school students. *International Journal of Adolescent Medicine and Health, 11*(3-4), 153-158.

Olweus, D. (1979). Stability of aggressive reaction patterns in males: A review. *Psychological Bulletin, 86*, 852-875.

Olweus, D. (1992). Bullying among schoolchildren: Intervention and prevention. In R. D. Peters, R. J. McMahon, & V. L. Quinsey (Eds.), *Aggression and violence throughout the life span* (pp. 100-125). Newbury Park, CA: Sage.

Osofsky, J. (1995). The effect of exposure to violence on young children. *American Psychologist, 50*(9), 782-788.

Osofsky, J. D. (Ed.). (1997). *Children in a violent society*. New York, NY: Guilford Press.

Perry, B. (1997). Incubated in terror: Neurodevelopmental factors in the "cycle of violence". In J. D. Osofsky (Ed.), *Children in a violent society* (pp. 124-149). New York: Guilford.

Perry, D. G., Perry, L. C., & Rasmussen, P. (1986). Cognitive social learning mediators of aggression. *Child Development, 57*(3), 700-711.

Perry, B. D., Pollard, R. A., Blakley, T. L., Baker, W. L., & Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and "use-dependent" development of the brain: How "states" become "traits". *Infant Mental Health Journal, 16*(4), 271-291.

Pettit, G. S. (1997). The developmental course of violence and aggression: Mechanisms of family and peer influence. *Anger, Aggression, and Violence, 20*(2), 283-299.

Pollak, S. D., Cicchetti, D., Hornung, K., & Reed, A. (2000). Recognizing emotion in faces: Developmental effects of child abuse and neglect. *Developmental Psychology, 36*(5), 679-688.

Pollak, S. D., & Tolley-Schell, S. A. (2003). Selective attention to facial emotion in physically abused children. *Journal of Abnormal Psychology, 112*(3), 323-338.

Pynoos, R. S., Steinberg, A. M., Ornitz, E. M., & Goenjian, A. K. (1997). Issues in the developmental neurobiology of traumatic stress. In R. Yehuda & A. C. McFarlane (Eds.), *Psychobiology of posttraumatic stress disorder* (Vol. 821, pp. 176-193). New York: New York Academy of Sciences.

Raine, A. (2002). Biosocial studies of antisocial and violent behavior in children and adults: A review. *Journal of Abnormal Child Psychology, 30*(4), 311-326.

Raine, A., Brennan, P., & Mednick, S. A. (1997). Interaction between birth complications and early maternal rejection in predisposing individuals to adult violence: Specificity to serious, early-onset violence. *American Journal of Psychiatry, 154*(9), 1265-1271.

Raine, A., Venables, P. H., & Mednick, S. A. (1997). Low resting heart rate at age 3 years predisposes to aggression at age 11 years: Evidence from the Mauritius Child Health Project. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*(10), 1457-1464.

Rhodewalt, F., & Morf, C. C. (1995). Self-correlates of the Narcissistic Personality Inventory: A review and new findings. *Journal of Research in Personality, 29*, 1-23.

Richters, J. E., & Martinez, P. E. (1993). Violent communities, family choices, and children's chances: An algorithm for improving the odds. *Development and Psychopathology, 5*(4), 609-627.

Rieder C., & Cicchetti, D. (1989). Organizational perspective on cognitive control functioning and cognitive-affective balance in maltreated children. *Developmental Psychology, 25,* 382-393.

Rose, A. J., Swenson, L. P., & Waller, E. M. (2004). Overt and relational aggression and perceived popularity: Developmental differences in concurrent and prospective relations. *Developmental Psychology, 40*(3), 378-387.

Schulkin, J., Gold, P. W., & McEwen, B. S. (1998). Induction of corticotropin-releasing hormone gene expression by glucocorticoids: Implication for understanding the states of fear and anxiety and allostatic load. *Psychoneuroendocrinology, 23*(3), 219-243.

Lochman, J. E., & Dodge, K. A. (1994). Social-cognitive processes of severely violent, moderately aggressive, and nonaggressive boys. *Journal of Consulting and Clinical Psychology, 62*(2), 366-374.

Schwartz, D., Dodge, K. A., Coie, J. D., Hubbard, J. A., Cillessen, A. H. N., Lemerise, E. A., & Bateman, H. (1998). Social-cognitive and behavioral correlates of aggression and victimization in boys' play groups. *Journal of Abnormal Child Psychology, 26*(6), 431-440.

Shahinfar, A., Kupersmidt, J. B., & Matza, L. S. (2001). The relation between exposure to violence and social information processing among incarcerated adolescents. *Journal of Abnormal Psychology, 110*(1), 136-141.

Slaby, R. G., & Guerra, N. G. (1988). Cognitive mediators of aggression in adolescent offenders: I. Assessment. *Developmental Psychology, 24*(4), 580-588.

Snyder, H. N., & Sickmund, M. (1999). *Juvenile offenders and victims: 1999 national report.* Washington, DC: Office of Juvenile Justice and Delinquency Prevention.

Steinberg, L., (in press). Risk-taking in adolescence: What changes, and why? In R. E. Dahl, A. E. Kelley, & L.P. Spear (Eds.) Adolescent brain development: Vulnerabilities and opportunities. *Annals of the New York Academy of Sciences, 1021.*

Tolan, P. (2001). Emerging themes and challenges in understanding youth violence involvement. *Journal of Clinical Child Psychology, 30*, 233-239.

van den Boom, D. C. (1994). The influence of temperament and mothering on attachment and exploration: An experimental manipulation of sensitive responsiveness among lower-class mothers with irritable infants. *Child Development, 65*(5), 1457-1477.

van der Kolk, B. A. (1996). The body keeps score: Approaches to the psychobiology of posttraumatic stress disorder. In B. A. van der Kolk, A. C. McFarlane, & L. Weisaeth (Eds.), *Traumatic stress: The effects of overwhelming experience on mind, body, and society* (pp. 214-241). New York, NY: Guilford Press.

vanIJzendoorn, M. H., Schuengel, C., & Bakermans-Kranenburg, M. J. (1999). Disorganized attachment in early childhood: Meta-analysis of precursors, concomitants, and sequelae. *Development and Psychopathology, 11*, 225-250.

Waddington, C. (1957). *The strategy of the genes.* London: Allen and Unwin.

Werner, E. (2000). Protective factors and individual resilience. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed., pp. 115-132). New York: University Press.

Widom, C. S. (1997). Child abuse, neglect, and witnessing violence. In D. M. Stoff, J. Breiling, & J. D. Maser (Eds.), *Handbook of Antisocial Behavior* (pp. 159-170). New York: John Wiley & Sons.

Yoon, J., Hughes, J., Gaur, A., & Thompson, B. (1999). Social cognition in aggressive children: A metaanalytic review. *Cognitive and Behavioral Practice, 6*(4), 320-331.

Yoshikawa, H. (1994). Prevention as cumulative protection: Effects of early family support and education on chronic delinquency and its risks. *Psychological Bulletin, 115*(1), 28-54.

Zelli, A., Dodge, K. A., Lochman, J. E., & Laird, R. D. (1999). The distinction between beliefs legitimizing aggression and deviant processing of social cues: Testing measurement validity and the hypothesis that biased processing mediates the effects of beliefs on aggression. *Journal of Personality and Social Psychology, 77*(1), 150-166.

PAPER TWO

Information Processing as a Link between Esteem and Aggression

Abstract

There is ongoing debate regarding the role of self-esteem in aggression (Baumeister, Smart, & Boden, 1996). Some high self-esteem individuals respond aggressively in ego threatening situations whereas others do not. The present study explores the possibility that both views of self and others are factors in aggression and information processing. Assessments of self- and other-esteem, aggression, personality, and negatively biased information-processing (Dodge et al., 1986) were completed by 125 participants. Findings indicated that participants with lower other-esteem reported higher levels of aggression, regardless of self-esteem level and that negatively biased social information processing mediated the association between other-esteem and aggression. The results suggest that inconsistencies in the research on self-esteem and aggression may be elucidated by taking other-esteem into account.

Introduction

There is ongoing debate regarding the influence of self-esteem on social behavior, and especially its contribution to interpersonal violence and aggression. The traditional view held that aggressive individuals have poor self-views, but more recent reviews of the literature (e.g., Baumeister, Campbell, Krueger, & Vohs, 2003; Baumeister, Smart, & Boden, 1996) find little evidence for this claim, and even suggest that the opposite may be true. Nevertheless, the findings are mixed; some high self-esteem individuals tend to respond aggressively in ego threatening situations whereas others do not (Bushman & Baumeister, 1998; Rhodewalt & Morf, 1998). The present study explores the possibility that not just views of self but also views of others may be a factor in aggression. Further, we propose that negatively biased information processing is a mechanism by which self- and other-esteem increase the likelihood of aggressive behavior.

Aggression and Views of Self

Although it is commonly believed that aggressive individuals have low self-esteem, there is little empirical evidence to support this notion (Baumeister, 2001; Baumeister et al., 2003; Baumeister et al., 1996). To the contrary, there is a growing body of research indicating that aggressive youth often possess higher self-esteem than their non-aggressive peers (Lochman & Dodge, 1994; Olweus, 1992). Along the same lines, several studies have linked unstable high self-esteem with anger, hostility, rejection sensitivity, and defensiveness (e.g., Kernis, Cornell, Sun, Berry, & Harlow, 1993; Kernis, Grannemann, & Barclay, 1989; Kernis & Sun, 1994).

The mixed findings on the role of self-esteem have brought about a shift in focus toward related factors, such as narcissism or inflated egotism (Baumeister, 2001; Baumeister et al., 1996). Narcissism is commonly defined in terms of a grandiose view of self, an exaggerated sense of entitlement, low empathy, and an exploitative

attitude toward others (Baumeister, Bushman, & Campbell, 2000). Most psychoanalytic theories contend that narcissists have a thin shell of false high self-esteem that protects a tender, low self-esteem core (Kernberg, 1975; Kohut, 1971). This theory is difficult to test empirically, given that narcissists typically score high on measures of self-esteem (Baumiester et al., 2000; Rhodewalt & Morf, 1995), either because they truly have high self-esteem or perhaps because the questions trigger a defensive response. In contrast, Baumeister et al. (2000) argue that the inflated self-view expressed by aggressive narcissists is not simply a cover-up for low self-esteem, but rather that they are confused about or have unstable views of self.

Narcissists use a variety of strategies to maintain an inflated self-view, have a cynical mistrust of others, and respond defensively and aggressively to critical evaluation from others (Baumeister et al., 2000; Campbell, Rudich, & Sedikides, 2002; Morf & Rhodewalt, 1993; Rhodewalt & Morf, 1995). They have been shown to have relationships that are typically low in commitment, warmth, and caring (Campbell et al., 2002). Many of these characteristics are readily observable in school bullies (Olweus, 1992), members of street gangs, criminals, and psychopaths (Baumeister, 1999; Baumeister et al., 1996; Garbarino, 1999; Gilligan, 1996; Hare, 1999). Studies also indicate that individuals high in narcissism respond more aggressively than others after receiving ego-threatening feedback (Bushman & Baumeister, 1998; Rhodewalt & Morf, 1998).

Although lack of empathy is a central feature of Narcissistic Personality Disorder, according to the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994 [*DSM-IV*]), it is often absent from the literature on trait narcissism (e.g., Raskin & Terry, 1988). Empathy is commonly defined as the ability and willingness to recognize, comprehend, and experience other people's emotions (Nezlek, Feist, Wilson, & Plesko, 2001). Research indicates that

both empathy and moral reasoning are associated with prosocial behavior (Cohen & Strayer, 1996; Eisenberg & Miller, 1987; Ellis, 1982) and may inhibit delinquent and aggressive behavior (Ellis, 1982; Miller & Eisenberg, 1988). Several researchers have noted that cognitive social insight, perspective-taking skills, and moral reasoning are necessary for an accurate assessment of other people's intentions, and thus crucial for empathic behavior (Bryant, 1982; Ellis, 1982; Mehrabian & Epstein, 1972). These cognitive features of empathy are conceptually similar to aspects of Dodge and colleagues' (Dodge, Pettit, McClaskey, & Brown, 1986) social information processing model.

Aggression and Views of Others

Baumeister and colleagues (2003) contend that high self-esteem individuals constitute a heterogeneous group; some are aggressive, whereas others are not. According to relational cognition theory (Baldwin, 1992, 1995), it is the combination of self and other views that influences the way people interpret, organize, and respond to social information. Those with negative self and/or other views tend to be sensitive to, and possibly are continuously searching for, information that is consistent with and confirming of their expectations. These combined views of self and other are what Baldwin (1992, 1995) refers to as "relational schemas" and what within attachment theory (Bowlby, 1973) are called "internal working models."

Compared to research on self-esteem and aggression, there has been relatively little work on the association between aggression and other-esteem. One notable exception is a multi-site longitudinal study of school children (i.e., Child Development Project), that provides preliminary support for such an association. Aggressive youth were found to have hostile or negative views of other people (Burks, Dodge, Price, & Laird, 1999; Burks, Laird, Dodge, Pettit, & Bates, 1999). Furthermore, several studies indicate that, even after controlling for intellectual abilities, aggressive children and

adolescents have distorted information-processing styles, including attention to and interpretation of social cues, selection of solutions to social situations, expectations of situational outcomes, and perceptions of their own aggressive behavior (for a review, see Crick & Dodge, 1994). If aggression-prone individuals have generally negative views of others, this could explain why they are more likely than non-aggressive individuals to interpret ambiguous social interactions as hostile and to behave in a manner than increases the likelihood of an aggressive response (Burks, Dodge et al., 1999; Burks, Laird, et al., 1999; Dodge & Frame, 1982; Huesmann, 1988; Nasby, Hayden, & DePaulo, 1980; Slaby & Guerra, 1988; Zelli, Dodge, Lochman, & Laird, 1999).

The Present Study

Baldwin (1992, 1995) argued that it is not simply views of self or views of others that influence behavior, but rather the interaction of the two. Building on this theory, as well as Baumeister and colleagues' (1996) findings, we employed an information-processing paradigm to examine the joint influence of self and other views on aggression. Specifically, we tested a model in which the association between self- and/or other-esteem and aggression is mediated by negatively biased social information processing (Burks, Laird et al., 1999) (see Figure 2.1).

Method

Participants

Participants were 125 male and female (76%) undergraduate students (68% Caucasian, 16% Asian, 5.6% African-American, and 4.8% Hispanic), ranging in age from 18 to 27 years (M = 19.9; SD = 1.6), who were recruited from psychology and human development classes and received course credit for participating in a study of "relationships and problem solving."

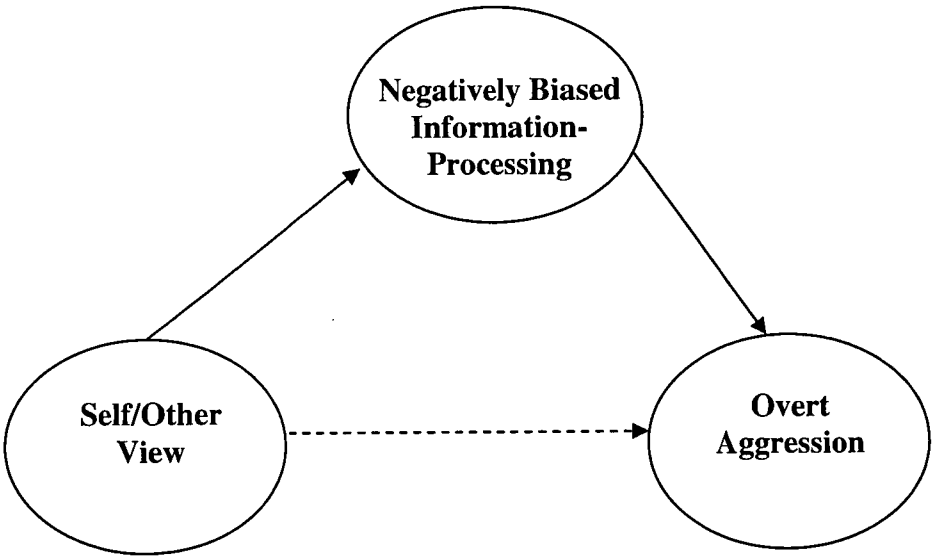

Figure 2.1. Hypothesized Model: Negatively biased information-processing as a mediator between negative self/other view and overt aggression.

Materials[1]

Self-esteem. The Rosenberg Self-Esteem Inventory (RSE; Rosenberg, 1965) is one of the most commonly used assessments of global self-esteem. Participants rated the self-descriptiveness of 10 statements (e.g., "On the whole, I am satisfied with myself," "I take a positive attitude toward myself," "I feel that I have a number of good qualities") on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*) (Chronbach's alpha (α) =.85).

Other-esteem. The Schema Assessment of Typicality (Burks, Laird et al., 1999) was used to assess views of others. Participants were presented with pairs of terms where one was positive (e.g., approachable) and the other negative (e.g., unreachable), and asked to indicate which term best described "their parents/caregivers," "teachers at their school," and "other students at their school."

[1] All questionnaire materials for this study are provided in Appendix A.

These three domains were summed to yield one aggregate, with a higher score indicating a more positive view of others ($\alpha = .77$).

Personality factors. Participants completed measures of narcissism, empathy, self-esteem, depression, anxiety, and impulsivity. The Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988) is a 40-item forced-choice measure of both adaptive (i.e., authority, superiority, self-sufficiency, vanity) and maladaptive (i.e., exploitation, entitlement, exhibitionism) attributes (Watson & Biderman, 1993; Watson, Grisham, Trotter, & Biderman, 1984). We have reported the two broad dimensions of adaptive and maladaptive narcissism because previous research indicates that adaptive narcissism is associated with high self-esteem whereas maladaptive narcissism is associated with aggression. As Baumeister et al. (2000) argue, some aspects of narcissism may be more relevant to violence than others. This distinction is germane to the present focus on self-esteem and aggression ($\alpha = .85$ for the NPI total scale, .77 for the adaptive subscale, and .73 for the maladaptive subscale).

Participants completed the Emotional Empathy Questionnaire (Mehrabian & Epstein, 1972), a 30-item measure of perceiving and sharing a feeling or emotion with others ($\alpha = .76$). They responded to six items from the depression ($\alpha = .80$) and six from the anxiety ($\alpha = .81$) subscales of the Brief Symptom Inventory (Derogatis, 1993). The participants also completed the 30-item Barratt Impulsivity Scale (Barratt, 1994; Patton, Stanford, & Barratt, 1995) to assess behavioral impulsiveness, attentional/cognitive impulsiveness, motor impulsiveness, and non-planning impulsiveness ($\alpha = .83$).

Social information processing. Dodge and colleagues (1986) proposed an aggressogenic information processing sequence that includes a hostile attribution bias, aggressive response generation, and justification of aggression. In the present study,

we used a written hypothetical situations task similar to the instrument originally developed by Dodge and Frame (1982). Their instrument was designed for use with elementary school children; we adapted it for use with young adults. Participants were presented with four vignettes, each of which involved ambiguous behavior on the part of a peer (i.e., the peer holds the participant's lunch, uses his/her pencil, spills a drink on the participant, hits the participant with a ball). After reading each scenario, participants were instructed to write a brief statement regarding their interpretation of the provocateurs' intent and the participants' likely response.

Hostile attribution bias was assessed by the degree of hostility participants inferred regarding the peers' intent. Hostility was rated on a seven-point scale, with low scores assigned to positive motives and high scores assigned to aggressive motives. The coding scheme is described in detail below.

Aggressive response generation was assessed by the degree of hostility in what participants reported as their own likely response. This was also rated on a seven-point scale.

Justification of aggression was assessed by four-items regarding the legitimization of aggressive responses to threat (Huesmann, Guerra, Miller, & Zelli, 1992). Participants indicated on a seven-point Likert scale the degree to which they agreed with the following statements: "It is OK for me to hit someone if they start a fight on my turf;" "It is OK to yell at someone if s/he looks at me in a bad way; " "It's OK for me to hit someone if s/he hits me first;" and "If people do something to make me really mad, they deserve to be beaten-up" ($\alpha = .84$).

Aggression. Aggression was assessed by the overt aggression subscales of the Aggression Questionnaire (Buss & Perry, 1992). The Aggression Questionnaire was developed to measure trait aggressiveness in non-clinical adult and adolescent populations and includes the following four subscales: physical aggression, anger,

verbal aggression, and hostility. The verbal (α = .80) and physical aggression[2] (α = .73) subscales assess overt components of aggression (e.g., physically hitting, attacking, yelling at, or injuring someone). The anger subscale (α = .81) assesses an affective or emotional component of aggression, which may help trigger the physiological arousal and preparation necessary for an aggressive attack. The hostility subscale (α = .82) assesses the cognitive component of aggression, including feelings of malice, jealousy, and injustice (Buss & Perry, 1992). Participants indicated on a seven-point Likert scale the degree to which each phrase described themselves. The physical aggression subscale has been shown to correlate with young adults' physically aggressive behavior (Harris & Knight-Bohnhoff, 1996).

Procedure

In small group testing sessions (n<10), participants completed assessments of several personality factors (i.e., empathy, narcissism, depression, anxiety, and impulsivity), justification of aggression, self-esteem, other-esteem, and aggression. Participants also completed the hypothetical situations task in which they assessed the provocateur's intent and their own likely response in each. Administration of the hypothetical situations task was counterbalanced with the other test materials to control for a possible order effect; however, a MANOVA indicated that there was no such effect on responses to the hypothetical situations or other measures, F (16, 117) = .92, p = .55.

Coding of the hypothetical situations task data. Intent and response statements were entered verbatim into separate electronic databases. Three male and six female undergraduates unaware of the study hypotheses were trained to independently code

[2] Physical aggression items were as follows: Once in a while I can't control the urge to strike another person; I have threatened people I know; I get into fights a little more than the average person; and I have become so mad that I have broken things.

the exhaustive lists of 170 different intents and 339 different responses. The seven-point coding scheme was based on a three-point scheme developed by Dodge and Frame (1982) to rate children's responses in a similar hypothetical situations task. Coders were instructed to assign low scores to positive intents (e.g., "He was just watching over it for me"), moderate scores to ambiguous intents (e.g., "He wanted to see how I would react"), and high scores to aggressive intents (e.g., "He was trying to steal it"). Similarly, coders assigned low scores to positive responses (e.g., "I would give him the pencil"), moderate scores to ambiguous responses (e.g., "I would give him a mean look and walk away"), and high scores to aggressive responses (e.g., "I would punch him in the face"). This task demonstrated an acceptable level of internal consistency (α = .77 for intents and .64 for the responses). Intent and response scores across all four vignettes were averaged, yielding one score for hostile attribution bias and one for response generation, respectively.

Analysis plan. The first phase of analyses examined whether participants differed in aggression, personality, and information processing based on their specific combination of high and low views of self and other. In order to test this association, each participant was categorized into one of four groups according to their scores on the self-esteem and other-esteem measures. Our rationale for treating self- and other-esteem as dichotomous rather than continuous variables follows from our hypothesis that it is the specific *combination* rather than the simple effects or interactions of self- and other-esteem that increases the likelihood of aggression and aggressogenic information processing. Specifically, being high on self-esteem is qualitatively different from being high on other-esteem, but treating the two variables as continuous and examining their interaction obfuscates this distinction[3]. Consequently, we focused

[3] Imagine, for example, a participant who has a score of 4 on self-esteem and 1 on other-esteem. By conducting an interaction on the continuous data, this person would appear the same as one who had a score of 1 on self-esteem and 4 on other-esteem.

on the relation between the specific combinations of self- and other-esteem and the aggression, information processing, and personality factors in the first set of analyses using correlational and multivariate procedures. The second phase of analyses used structural equation modeling (SEM) procedures to examine the effect of continuous self- and other-esteem variables on aggression, as mediated by information processing.

Results

Assigning Participants to Groups According to Self/Other Views

Median splits on the self- and other-esteem measures were used to assign participants to one of the following four groups: High Self-Esteem/High Other-Esteem (HSE/HOE) [n = 35], LSE/HOE [n = 26], HSE/LOE [n = 26], and LSE/LOE [n = 37][4]. The medians were 31 for the self-esteem and 21 for the other-esteem scales. The bivariate correlations, means, and standard deviations for the self-/other-esteem, personality, aggression, and information processing variables are presented in Table 2.1.

Self/Other Views and Aggression

To test the hypothesis that levels of aggression vary by views of self and other, we examined whether aggression subscale scores (i.e., physical aggression, verbal aggression, hostility, and anger) differed significantly by self/other view group (see Figure 2.2). A MANOVA indicated a significant difference in aggression scores by group, Wilks' Λ= .812, F (12, 117) = 2.12, p<.05. The follow-up tests showed a significant difference for hostility, F (3, 120) = 7.09, p<.001, and marginally significant effect for anger, F (3, 120) = 2.847, p=.06.

---

[4] One participant did not complete the page of the questionnaire with the RSE and thus was not included in these analyses.

Table 2.1 Bivariate correlations, means, and standard deviations for esteem, biased information-processing, aggression, and personality factors.

Variable	1	2	3	4	5	6	7
1. Self-Esteem	--						
2. Other-Esteem	.27**	--					
3. Anger	-.20*	-.30**	--				
4. Hostility	-.45**	-.41**	.43**	--			
5. Verbal Aggression	.01	-.25**	.58**	.35**	--		
6. Physical Aggression	-.04	-.28**	.70**	.32*	.49**	--	
7. Empathy	.02	.28**	-.17	-.24**	-.21*	-.20*	--
8. Depression	-.45**	-.37**	.39**	.50**	.12	.21*	-.06
9. Anxiety	-.35**	-.34**	.39**	.45**	.26**	.17	.12
10. Impulsivity	-.25**	-.25**	.43**	.21*	.31**	. 35**	-.12
11. Justification of Aggression	-.02	-.33**	.57**	.29**	.48**	.70**	-.44**
12. Hostile Attribution Bias	-.01	-.12	.13	.09	.28**	.34**	-.11
13. Response Generation	-.04	-.30**	.23**	.11	.34**	.37**	-.22**
14. NPI Maladaptive	.15	-.18*	.33**	.08	.44**	.35**	-.09
15. NPI Adaptive	.50**	.10	.12	-.17	.36**	.23**	-.12
16. NPI Total	.38**	.03	.25**	-.05	.44**	.32**	-.13
M	31.56	20.79	2.86	3.38	3.79	1.963	4.98
SD	4.11	3.77	1.076	1.106	1.229	1.09	.606

Note. NPI = Narcissistic Personality Inventory; NPI Total = Total score on entire scale; a = It is not appropriate to calculate these correlations because they constitute a correlation between the total scale score and a subscale score. *p<.05, **p<.01

Table 2.1 (Continued)

Variable	8	9	10	11	12	13	14	15	16
1. Self-Esteem									
2. Other-Esteem									
3. Anger									
4. Hostility									
5. Verbal Aggression									
6. Physical Aggression									
7. Empathy									
8. Depression	--								
9. Anxiety	.48**	--							
10. Impulsivity	.25**	.27**	--						
11. Justification of Aggression	.17	.18	. 34**	--					
12. Hostile Attribution Bias	-.04	.10	.09	.34**	--				
13. Response Generation	.06	.17	.19*	.42**	.64**	--			
14. NPI Maladaptive	-.01	.14	.30**	.30**	.12	.13	--		
15. NPI Adaptive	-.33**	-.07	.05	.25**	.18*	.15	.64**	--	
16. NPI Total	-.20*	.02	.20*	.31**	.15	.14	a	a	--
M	11.23	10.4	3.399	8.27	11.9	12.94	7.42	9.78	17.2
SD	3.83	3.94	.629	4.89	4.83	3.62	3.38	4.00	6.74

As shown in the standardized mean aggression scores provided in Figure 2.2, the LSE/LOE group tended to report the highest levels of all four types of aggression and the HSE/HOE participants tended to report the lowest levels of all types of aggression. Post hoc pairwise comparisons conducted using Tukey's honestly significant difference test (alpha = .05) indicated that the LSE/LOE differed significantly from the HSE/HOE on anger and hostility, and from the HSE/LOE on hostility.

This pattern of findings suggests a possible explanation for previously observed inconsistencies regarding the association between self-esteem and aggression: the association may vary by the way aggression is measured. More specifically, "aggression" is often operationalized by scales that confound the overt forms (i.e., physical and verbal aggression) with the emotional and cognitive forms (i.e., anger and hostility), and their correlates (such as impulsivity and irritability) (Buss & Perry, 1992; Nagin & Tremblay, 1999). However, the present study, like others (e.g., Kopper & Epperson, 1996) shows that low self-esteem is correlated with anger and hostility, but not necessarily the overt forms of aggression. As reported in Table 2.1, self-esteem correlated with anger, r (124) = -.20, p<.05, and hostility, r (124) = -.45, p<.01, but not with physical, r (124) = -.04, p>.05, or verbal aggression, r (124) =.01, p>.05. A similar pattern of correlations was observed for depression and aggression, except that there was a small but significant correlation between depression and physical aggression, r (122) = .21, p<.05.

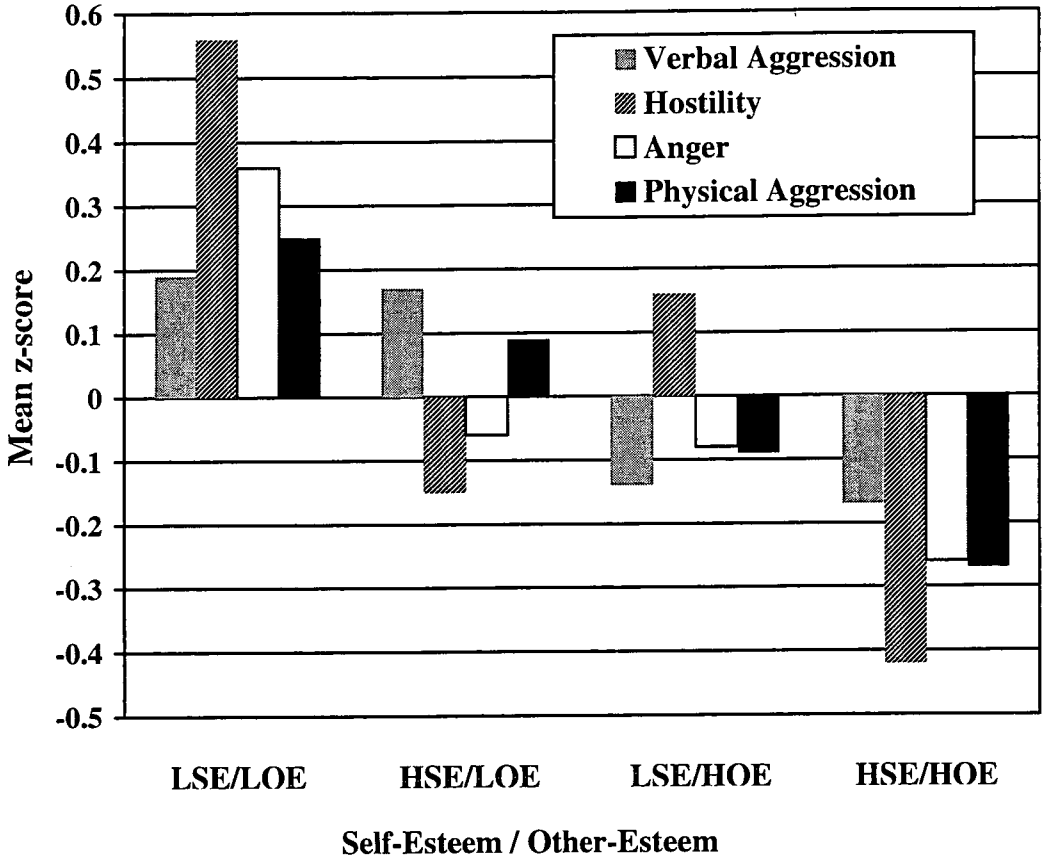

Figure 2.2. Mean z-scores for the four aggression factors by self/other view. The means were converted to z-scores to facilitate comparison across subscales.

Self/Other View and Personality

Both self- and other-esteem were negatively correlated with depression, anxiety, and impulsivity (see Table 2.1). Other-esteem was significantly correlated with empathy, r (125) = .28, p<.01, however self-esteem was not, r (124) = .02, p>.05. A MANOVA was conducted to determine whether participants' scores on personality factors (i.e., anxiety, depression, impulsivity, and empathy) differed as a function of self/other view group. Mean personality scores varied significantly by self/other view, Wilks' Λ= .718, F (12, 117) = 3.446, p<.001. Follow-up ANOVAs indicated significant differences for all factors, except empathy, F (3, 120) = 1.998, p =.12. Post

hoc analyses indicated that the LSE/LOE participants differed significantly from the HSE/HOE on depression, anxiety, and impulsivity, and from the HSE/LOE on depression. The HSE/HOE participants differed significantly from the LSE/HOE on impulsivity. Participants with HOE and either level of self-esteem tended to report higher levels of empathy, although this difference did not reach statistical significance. Taken together, the personality data follow a similar pattern to the aggression results presented above, whereby participants with HSE/HOE tended to report the most adaptive functioning and participants with LSE/LOE tended to report the highest levels of internalizing problems (i.e., depression and anxiety), externalizing problems (i.e., impulsivity), and less prosocial insight (i.e., empathy) (see Figure 2.3).

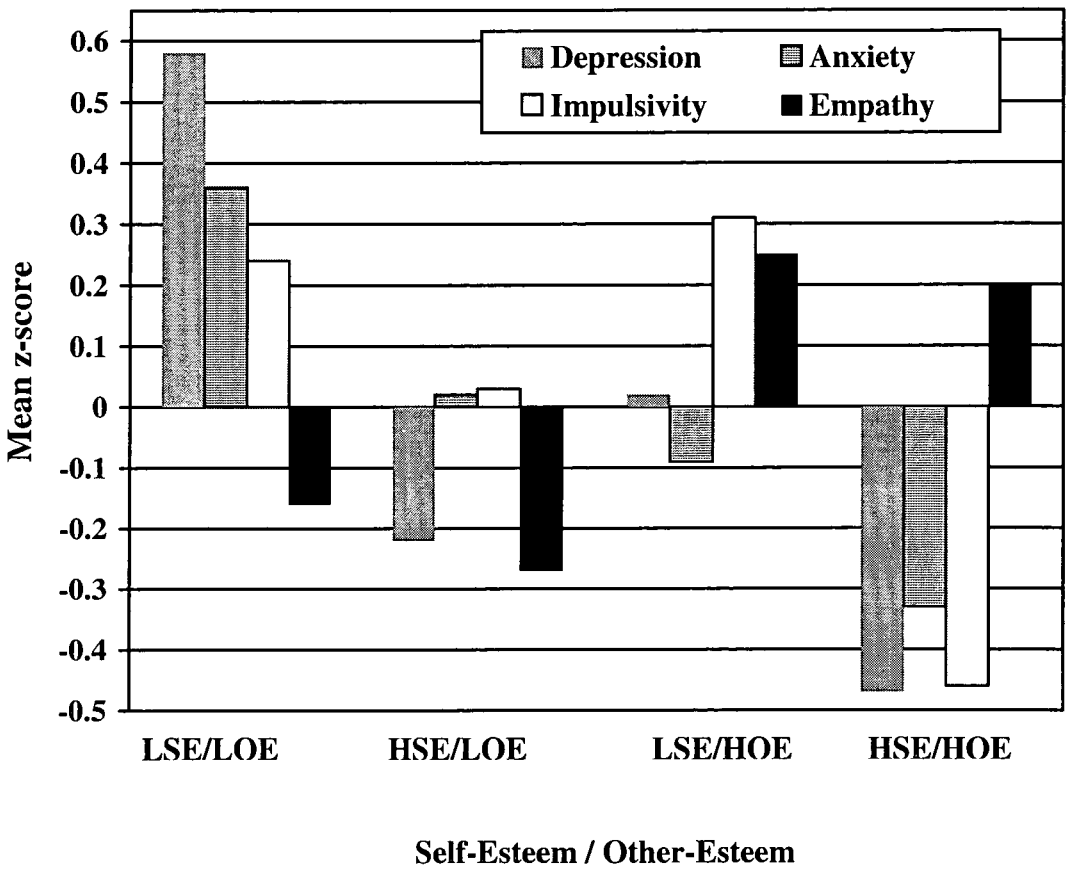

Figure 2.3. Mean z-scores on personality factors by self/other view. The means were converted to z-scores to facilitate comparison across subscales.

The trends for narcissism were somewhat inconsistent with expectations. The mean adaptive and maladaptive NPI subscale scores are presented in Figure 2.4. A one-way MANOVA showed that the subscale scores varied significantly by self/other view group, Wilks' Λ=.707, F (6, 120) = 7.495, p<.001; however, the follow-up univariate ANOVA indicated a significant effect only for the adaptive subscales, F (3, 120) = 10.805, p<.001. Participants in the HSE/HOE group reported significantly higher levels of adaptive narcissism than both the LSE/LOE and the LSE/HOE participants. In contrast, the HSE/LOE group, given their favorable view of self and unfavorable view of others, was expected to report the highest levels of maladaptive narcissism. But this effect did not reach statistical significance.

As in other studies (e.g., Bushman & Baumeister, 1998; Rhodewalt & Morf, 1995), we observed a significant correlation between total NPI scores and self-esteem, r (124) = .38, p<.01. However, this association was due in part to the correlation between self-esteem and the adaptive narcissism subscale, r (124) = .50, p<.01; self-esteem and maladaptive narcissism were uncorrelated, r (124) = .15, p >.05. Although both adaptive and maladaptive forms of narcissism were positively correlated with the overt forms of aggression, the correlations were slightly stronger for maladaptive narcissism (see Table 2.1). These findings are consistent with previous research by Watson et al. (1984) indicating that adaptive narcissism is more closely associated with self-esteem whereas maladaptive narcissism is more closely associated with overt aggression.

Self/Other View and Information Processing

Self-esteem was not correlated with any of the three social information-processing variables (see Table 2.1). In contrast, other-esteem was negatively correlated with two of the three (i.e., response generation and justification of aggression). Group means are presented in Figure 2.5. We conducted a MANOVA to

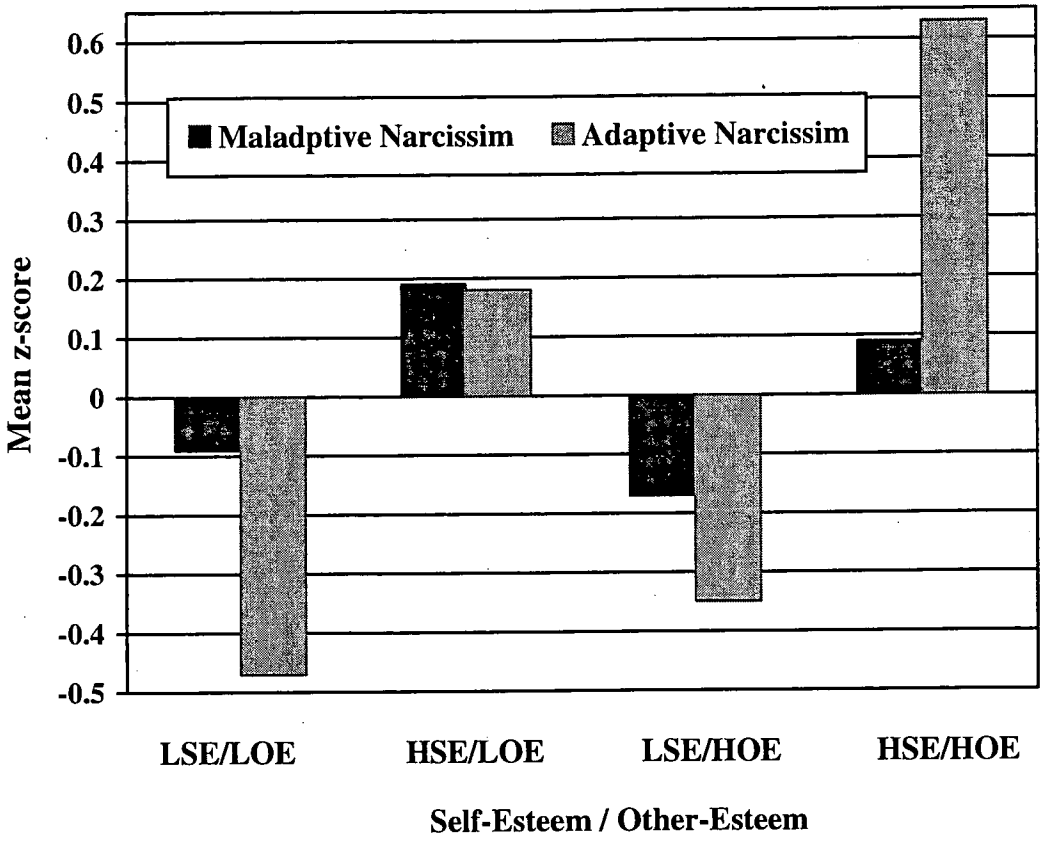

Figure 2.4. Mean z-scores on Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988) by self/other view. The means were converted to z-scores to facilitate comparison across subscales. The NPI Adaptive scale includes the authority, superiority, self-sufficiency, and vanity subscales whereas the NPI Maladaptive scale includes exploitation, entitlement, and exhibitionism.

assess whether information processing variables differed by group. Although the mean scores did not vary significantly by group, Wilks' $\Lambda = .923$, $F(9,118) = 1.07$, $p = .20$, the pattern of results was consistent with predictions. Specifically, whereas participants in the HSE/HOE group tended to have the least aggressive processing style, participants in the HSE/LOE and LSE/LOE groups tended to report the most aggressogenic processing. The findings for the HSE/LOE group are compatible with studies indicating that narcissistic individuals (i.e., those with inflated self-concept and

lacking in empathy toward others) are more aggressive in response to threat than participants with low self-esteem (Bushman & Baumeister, 1998). The finding of elevated aggressive processing styles among the LSE/LOE group is consistent with the results reported above regarding higher levels of aggression and other adjustment problems (i.e., depression, anxiety, impulsivity) for this group.

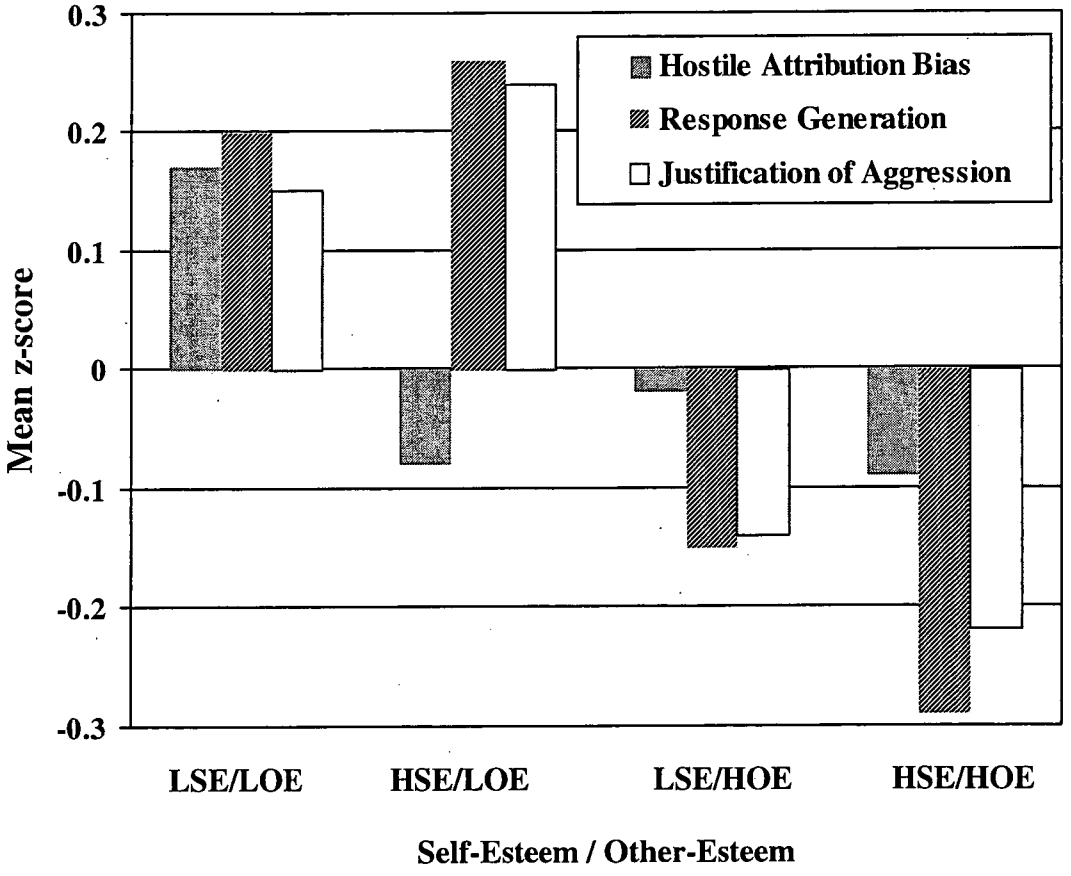

Figure 2.5. Mean z-scores on information processing variables by self/other view. The means were converted to z-scores to facilitate comparison across subscales.

Information Processing as a Mediator between Self/Other Views and Aggression

To address our main hypothesis that biased information-processing mediates the association between self/other views and aggression, we used structural equation modeling in AMOS 5. Self-esteem was not significantly correlated with physical

aggression, verbal aggression nor with any of the information processing variables (see Table 2.2). Thus, we focused on the association between other-esteem and overt aggression, as mediated by the latent variable of negatively biased information processing (comprised of hostile attribution bias, response generation, and justification of aggression, $\alpha = .71$) (Dodge et al., 1986). Because hostile attribution bias and response generation were both assessed via the hypothetical situations task they share a common method variance; therefore, we allowed their error terms to correlate, ($r = .56$, $p<.01$; Griffin & Bartholomew, 1994; Kline, 1998). The standardized coefficients are presented in Figure 2.6.

As hypothesized, other-esteem was negatively associated with negatively biased information-processing and overt aggression, χ^2 (6, 125) = 6.77, p =.343, χ^2 /df = 1.128, NFI = .972, CFI = .997, RMSEA = .032. The fit indices indicate that these data sufficiently fit the hypothesized mediational model. The inclusion of the mediating variable reduced the association between (low) other-esteem and overt aggression to non-significance (from $\beta = -.35$, $b = -.26$, $p<.05$ to $\beta = .06$, $b = .04$, $p>.3$) (Baron & Kenny, 1986). The standardized total effect of other-esteem on overt aggression was -.35, $p<.05$ (total (-.35) = direct (.06) + indirect (-.41))[5], with more than 100% of the effect (i.e., |indirect/total|) = |-.41 / -.35|) occurring through the mediating variable, social information processing (Bollen, 1989; Dodge, Laird, Lochman, & Zelli, 2002).

We also tested a series of alternative models with different exogenous and endogenous variables, but none fit the data significantly better than the hypothesized mediational model. Taken together, these data consistently indicate that social

[5] Despite a change in the sign (i.e., from negative to positive) when biased processing is included in the model, this does not appear to be a case of suppression. Although a sign change typically suggests some level of suppression (Kline, 1998), the direct effect is not significantly different from zero ($p>.30$), therefore this is not a significant suppression effect.

Table 2.2 Bivariate correlations for self-esteem, other-esteem, biased information-processing, and aggression.

	Self-Esteem	Other-Esteem	Hostile Attribution Bias	Response Generation	Justification of Aggression	Physical Aggression
Other-Esteem	.27*	--				
Hostile Attribution Bias	-.01	-.12	--			
Response Generation	-.05	-.30**	.64**	--		
Justification of Aggression	-.02	-.33**	.34**	.42**	--	
Physical Aggression	-.04	-.28**	.34**	.37**	.70**	--
Verbal Aggression	.01	-.25**	.28**	.34**	.48**	.49**

* $p < .05$, ** $p < .01$

information processing mediates the association between other-esteem and overt aggression (i.e., physical and verbal aggression), but not for views of self.

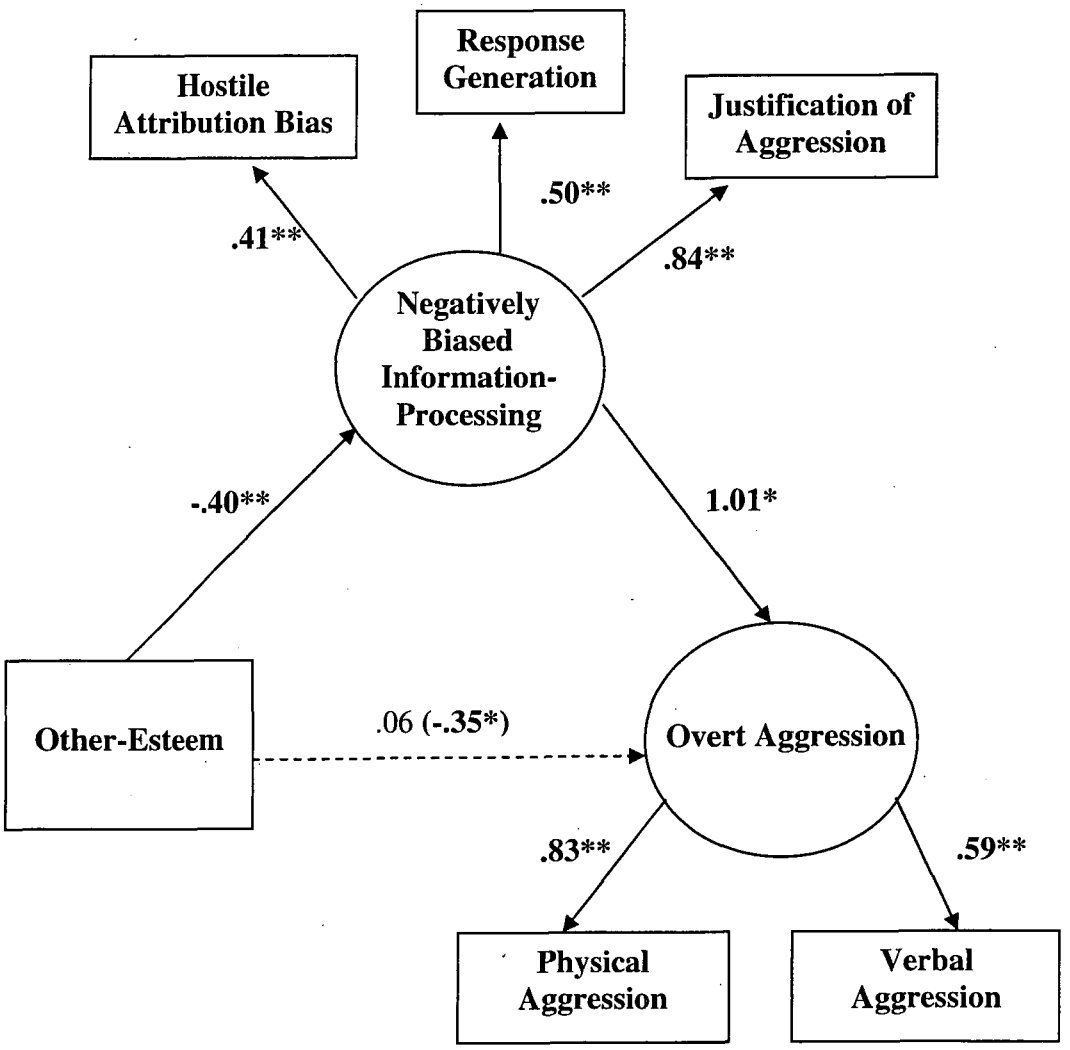

Figure 2.6. Standardized coefficients for the mediational model with biased information-processing mediating the association between other-esteem and overt aggression. Other-esteem is modeled as a manifest variable (shown in a rectangle) and social information processing and overt aggression are modeled as latent variables (shown in ellipses). The total effect of other-esteem on overt aggression is reported in the parentheses, χ^2 (6, 125) = 6.77, p =.343, χ^2 /df = 1.128, NFI = .972, CFI = .997, RMSEA = .032. * p<.05, **p <.01.

General Discussion

Whereas previous research has focused primarily on self-esteem as a factor in aggression, we examined the influence of other-esteem. In the present study, self-esteem was correlated with the cognitive (i.e., hostility) and affective (i.e., anger) components of aggression, but not overt physical or verbal aggression. Furthermore, self-esteem was not correlated with any of the three information-processing variables (i.e., hostile attribution bias, response access, justification of aggression). In contrast, other-esteem was negatively associated with all four types of aggression and two of the three information-processing variables. The findings indicate that inconsistencies regarding aggression and low self-esteem may be due to its association with some components of aggression, but not others. This suggests that future studies should examine overt and covert forms of aggression separately.

Self/Other Views, Information Processing, and Aggression

We examined how the specific combinations of views of self and other relate to the way social information is processed. Participants with low other-esteem, regardless of their level of self-esteem, tended to display the most aggressive processing styles. Participants with both low self- and other-esteem (i.e., LSE/LOE) tended to demonstrate the highest levels of aggression and internalizing problems. In contrast, participants with a combination of high self- and other-esteem (i.e., HSE/HOE) tended to display the least aggressive processing styles, the lowest levels of aggression, and the fewest problems with depression, anxiety, and impulsivity.

To assess whether biased information-processing may be a mechanism by which self/other views influence overt aggressive behavior, we modeled information processing as a latent variable mediating the association between the two. As noted above, self-esteem was not related to either form of overt aggression or information

processing (see Table 2.2). Thus, we focused on the association between other-esteem and overt aggression. Our analyses indicated that information processing mediated the entire relation between other-esteem and overt aggression (see Figure 2.6), such that after controlling for social information processing, other-esteem had no significant association with overt aggression. Traditional OLS regression analyses showed that other-esteem and the three information-processing variables accounted for nearly 50% of the effect on physical aggression, R^2 =.50, adjusted R^2 = .49, $F(4, 120) = 30.63$, p <.001 and over 20% on verbal aggression, R^2 =.26, adjusted R^2 = .23, $F(4, 120)$ = 10.35, p <.001. These findings indicate that having negative views of others is associated with the way social information is processed and likely contributes to aggressive responses to threat or provocation.

Self/Other Views and Personality

An interesting and unanticipated finding was observed regarding narcissism. Whereas we anticipated that the HSE/LOE participants would have the highest overall narcissism scores, it was actually the HSE/HOE that tended to report the highest. It is somewhat less surprising in retrospect, given that these were undergraduate students at a competitive university and the adaptive subscale included items related to leadership and assertiveness. It was also unexpected that neither of the NPI subscale scores correlated with empathy (see Table 2.1). This lack of correspondence suggests that the constructs (as assessed by these instruments) may be less closely related than described in the *DSM-IV* (1994) or by psychoanalytic theorists (e.g., Kernberg, 1975; Kohut, 1971).

Our results also provide support for the conceptualization of narcissism as both adaptive and maladaptive. Although the adaptive and maladaptive scales were correlated, r (125) = .64, p<.01, they related quite differently to self-esteem and

aggression. Specifically, the adaptive subscale correlated positively with self-esteem, r (124) = .50, p<.01, whereas the maladaptive subscale did not, r (125) = .15, p>.05, – a finding that is consistent with work by Watson and colleagues (Watson & Biderman, 1993; Watson et al., 1984). Moreover, the correlations between maladaptive narcissism and three of the aggression variables (anger, verbal aggression, and physical aggression) were stronger than those for adaptive narcissism (see Table 2.1). While the results for the full scale NPI are useful, our data indicate that the adaptive/maladaptive distinction informs the self-esteem/aggression debate.

In contrast, there were no significant differences in the empathy scores across self/other view groups. However, participants with high other-esteem tended to report higher levels of empathy than those with low other-esteem. The empathy measure selected for this study (Emotional Empathy Questionnaire; Mehrabian & Epstein, 1972) includes several subscales, some of which appear to be more relevant to emotional reactivity and emotional contagion than perspective taking. Although several studies have shown that empathy may be an important factor in preventing violence and aggression (Bjorkqvist, Oesterman, & Kaukiainen, 2000; Cohen & Strayer, 1996; Miller & Eisenberg, 1988), further research is needed to determine the association between different facets of empathy and information processing.

There are a few limitations of the present study which are worthy of consideration. Our sample was 76% female, and although none of the models differed significantly when conducted with data from the females only (n = 95), further work will be necessary to generalize to males. However, the high percentage of female participants likely attenuated the association between physical aggression and biased information processing, given that females tend to favor relational rather than physical ways of resolving conflict (Crick, Bigbee, & Howes, 1996). Moreover, the participants were relatively high-functioning undergraduate students; therefore, we anticipate even

stronger associations in high-risk samples. Although our sample was sufficient in size to perform the SEM analyses on the hypothesized mediational model (Kline, 1998), a larger sample would provide greater power.

The use of median spilt procedures to categorize individuals into high and low self-esteem groups may artificially exaggerate differences (Baumeister et al., 2003). Thus, participants categorized as LSE and/or LOE do not necessarily have negative views of self or others, just *less positive* views relative to other participants. Nevertheless, similar trends were observed in the data when participants' group membership was examined according to scores on the physical aggression measure. Participants' scores on the physical aggression scale varied by group membership, such that 43.2% of LSE/LOE participants' physical aggression scores were half a standard deviation or more above the mean (i.e., ≥ 2.5), as compared to 30.8% of the HSE/LOE, 19.2% of the LSE/HOE, and 14.3% of the HSE/HOE participants, χ^2 (3, N = 124) = 8.712, p = .033.

The cross-sectional design of the present study precludes firm conclusions about the directionality of these relationships. A few longitudinal studies indicate that biased information processing predicts future aggressive behavior. However, there is likely an interactive and reinforcing effect, such that aggressive behavior elicits future aggressive reactions from others, which in turn reinforces the hostile bias and overall aggressive processing pattern (Dodge et al., 2003; Dodge, Pettit, Bates, & Valente, 1995; Zelli et al., 1999). Additional longitudinal research is needed to confirm temporal ordering of these variables and to track the development of non-clinical levels of trait aggression in early adulthood.

The present study extends previous work in three ways. First, most of the research on biased information processing and aggression has focused on children (for

a review see Crick & Dodge, 1994), and there has been an implicit, but previously untested assumption that biased processing styles persist and continue to influence aggressive behavior into adulthood. We have provided evidence of this link in early adulthood. Second, the findings on how self-esteem relates to aggression have been inconsistent. Our results suggest that some of this inconsistency may be due to the multidimensional nature of aggression. Specifically, we found that affective and cognitive forms of aggression had different correlates than physical and verbal forms. Third, previous research has focused almost exclusively on views of self rather than views of others. Our results showed that individuals' general views of others are associated with aggression (Burks, Laird et al., 1999), and that other-esteem may help differentiate high self-esteem individuals who are aggressive from those who are not.

References

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, D.C.: Author.

Baldwin, M. W. (1992). Relational schemas and the processing of social information. *Psychological Bulletin, 112*, 461-484.

Baldwin, M. W. (1995). Relational schemas and cognition in close relationships. *Journal of Social and Personal Relationships, 12*(4), 547-552.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Barratt, E. S. (1994). Impulsiveness and aggression. In J. Monahan & H. J. Steadman (Eds.), *Violence and mental disorder: Developments in risk assessment* (pp. 61-79). Chicago, IL: University of Chicago Press.

Baumeister, R. F. (1999). *Evil: Inside human violence and cruelty*. New York: Henry Holt.

Baumeister, R. F. (2001). Violent pride: Do people turn violent because of self-hate or self-love? *Scientific American, 284*(4), 96-101.

Baumeister, R. F., Bushman, B. J., & Campbell, W. K. (2000). Self-esteem, narcissism, and aggression: Does violence result from low self-esteem or from threatened egotism? *Current Directions in Psychological Science, 9*(1), 1-26.

Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K.D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest, 4*(1), 1-44.

Baumeister, R. F., Smart, L., & Boden, J.M. (1996). Relation of threatened egotism to violence and aggression: The dark side of high self-esteem. *Psychological Review, 103*, 5-33.

Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley-Interscience.

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

Bjorkqvist, K., Oesterman, K., & Kaukiainen, A. (2000). Social intelligence - empathy = aggression? *Aggression and Violent Behavior, 5*(2), 191-200.

Bryant, B. K. (1982). An index of empathy for children and adolescents. *Child Development, 53*, 413-425.

Burks, V. S., Dodge, K. A., Price, J. M., & Laird, R. D. (1999). Internal representational models of peers: Implications for the development of problematic behavior. *Developmental Psychology, 35*(3), 802-810.

Burks, V. S., Laird, R. D., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1999). Knowledge structures, social information processing, and children's aggressive behavior. *Social Development, 8*(2), 220-236.

Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology, 75*(1), 219-229.

Buss, A. H., & Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology, 63*(3), 452-459.

Campbell, W. K., Rudich, E. A., & Sedikides, C. (2002). Narcissism, self-esteem, and the positivity of self-views: Two portraits of self-love. *Personality and Social Psychology Bulletin, 28*(3), 358-368.

Cohen, D., & Strayer, J. (1996). Empathy in conduct-disordered and comparison youth. *Developmental Psychology, 32*(6), 988-998.

Crick, N. R., Bigbee, M. A., & Howes, C. (1996). Gender differences in children's normative beliefs about aggression: How do I hurt thee? Let me count the ways. *Child Development, 67*(3), 1003-1014.panter

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.

Derogatis, L. R. (1993). *Brief Symptom Inventory: Administration, scoring, and procedural manual*. Minneapolis, MN: National Computer Systems.

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

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*(1), 60-73.

Dodge, K. A., Lansford, J. E., Burks, V. S., Bates, J. E., Pettit, G. S., Fontaine, R., & Price, J. M. (2003). Peer rejection and social information-processing factors in the development of aggressive behavior problems in children. *Child Development, 74*(2), 374-393.

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*(4), 632-643.

Dodge, K. A., Pettit, G. S., McClaskey, C. L., & Brown, M. (1986). Social competence in children. *Monographs of the Society for Research in Child Development, 51* (2, Serial No.213).

Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin, 101*(1), 91-119.

Ellis, P. L. (1982). Empathy: A factor in antisocial behavior. *Journal of Abnormal Child Psychology, 10*(1), 123-133.

Garbarino, J. (1999). *Lost boys: Why our sons turn violent and how we can save them.* New York: Free Press.

Gilligan, J. (1996). *Violence: Reflections on a national epidemic.* New York: Vintage.

Griffin, D. W., & Bartholomew, K. (1994). Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology, 67*(3), 430-445.

Hare, R. D. (1999). *Without conscience: The disturbing world of psychopaths among us.* New York: Guilford Press.

Harris, M. B., & Knight-Bohnhoff, K. (1996). Gender and aggression II. *Sex Roles, 35,* 27-42.

Huesmann, L. R. (1988). An information processing model for the development of aggression. *Aggressive Behavior, 14*(1), 13-24.

Huesmann, L. R., Guerra, N., Miller, L., & Zelli, A. (1992). The role of social norms in the development of aggression. In H. Zumkley & A. Fraczek (Eds.), *Socialization and aggression* . New York: Springer.

Kernberg, O. (1975). *Borderline conditions and pathological narcissism.* New York: Jason Aronoson.

Kernis, M.H., Cornell, D.P., Sun, C.R., Berry, A., & Harlow, T. (1993). There's more to self-esteem than whether its high or low: The importance of stability of self-esteem. *Journal of Personality and Social Psychology, 65,* 1190-1204.

Kernis, M. H., Grannemann, B.D., & Barclay, L.C. (1989). Stability and level of self-esteem as predictors of anger arousal and hostility. *Journal of Personality and Social Psychology, 56,* 1013-1022.

Kernis, M. H., & Sun, C.R. (1994). Narcissism and reactions to interpersonal feedback. *Journal of Research in Personality, 28*(1), 4-13.

Kline, R. B. (1998). *Principles and practices of structural equation modeling.* New York: Guilford.

Kohut, H. (1971). *Analysis of the self: A systematic approach to the psychoanalytic treatment of narcissistic personality disorders.* New York: International Universities Press.

Kopper, B. A., & Epperson, D. L. (1996). The experience and expression of anger: Relationships with gender, gender role socialization, depression, and mental health functioning. *Journal of Counseling Psychology, 43*(2), 158-165.

Lochman, J. E., & Dodge, K. A. (1994). Social-cognitive processes of severely violent, moderately aggressive, and nonaggressive boys. *Journal of Consulting and Clinical Psychology, 62*(2), 366-374.

Mehrabian, A., & Epstein, N. (1972). A measure of emotional empathy. *Journal of Personality, 40*(4), 525-543.

Miller, P. A:, & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing / antisocial behavior. *Psychological Bulletin, 103*(3), 324-344.

Morf, C.C., & Rhodewalt, F. (1993). Narcissism and self-evaluation maintenance: Explorations in object relations. *Psychological Bulletin, 19,* 668-676.

Nagin, D., & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development, 70*(5), 1181-1196.

Nasby, W., Hayden, B., & DePaulo, B. M. (1980). Attributional bias among aggressive boys to interpret unambiguous social stimuli as displays of hostility. *Journal of Abnormal Psychology, 89*(3), 459-468.

Nezlek, J. B., Feist, G. J., Wilson, C., & Plesko, R. M. (2001). Day-to-day variability in empathy as a function of daily events and mood. *Journal of Research in Personality, 35,* 401-423.

Olweus, D. (1992). Bullying among schoolchildren: Intervention and prevention. In R. D. Peters, R. J. McMahon, & V. L. Quinsey (Eds.), *Aggression and violence throughout the life span* (pp. 100-125). Newbury Park: Sage.

Patton, J. H., Stanford, M. S., & Barratt, E. S. (1995). Factor structure of the Barratt Impulsiveness Scale. *Journal of Clinical Psychology, 51*(6), 768-774.

Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology, 54,* 890-902.

Rhodewalt, F., & Morf, C. (1995). Self-correlates of the Narcissistic Personality Inventory: A review and new findings. *Journal of Research in Personality, 29,* 1-23.

Rhodewalt, F., & Morf, C. (1998). On self-aggrandizement and anger: A temporal analysis of narcissism and affective reactions to success and failure. *Journal of Personality and Social Psychology, 74*(3), 672-685.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Slaby, R. G., & Guerra, N. G. (1988). Cognitive mediators of aggression in adolescent offenders: I. Assessment. *Developmental Psychology, 24*(4), 580-588.

Watson, P. J., & Biderman, M. D. (1993). Narcissistic Personality Inventory factors, splitting, and self-consciousness. *Journal of Personality Assessment, 61*(1), 41-57.

Watson, P. J., Grisham, S. O., Trotter, M. V., & Biderman, M. D. (1984). Narcissism and empathy: Validity evidence for the Narcissistic Personality Inventory. *Journal of Personality Assessment, 48*(3), 301-305.

Zelli, A., Dodge, K. A., Lochman, J. E., & Laird, R. D. (1999). The distinction between beliefs legitimizing aggression and deviant processing of social cues: Testing measurement validity and the hypothesis that biased processing mediates the effects of beliefs on aggression. *Journal of Personality and Social Psychology, 77*(1), 150-166.

PAPER THREE

Social-Environmental Risk Factors and Aggression in Adolescence: The Role of Social-Cognitive Mediators

Abstract

Social rejection and violence exposure have been identified as risk factors for the onset and persistence of aggressive behavior during childhood (Dodge et al., 2003; Lynch & Cicchetti, 1998; Margolin & Gordis, 2000), but the specific mechanisms that mediate these associations are not well understood. The present study examines social-cognitive factors (i.e., general knowledge structures and social information processing) as a possible mechanism that links social-environmental risk with aggression. Using data from 184 suburban adolescents (mean age = 14.97, *SD* = .84) and their homeroom teachers, analyses with structural equation modeling indicated that the effect of social-environmental risk factors on aggression was partially mediated by negatively biased social-cognitive factors. Social rejection was more closely associated with negative general knowledge structures, whereas violence exposure was more closely associated with negatively biased social information processing.

Introduction

The effects of social rejection and community violence exposure on the onset and persistence of externalizing behavior problems are well documented (for reviews see Garbarino, 2001; Laird, Jordan, Dodge, Pettit, & Bates, 2001; Lynch & Cicchetti, 1998; Margolin & Gordis, 2000). It is less clear which specific *mechanisms* mediate these associations. We propose that a series of social-cognitive mechanisms mediate the association between these two social-environmental risk factors and aggressive behavior.

Social cognition is broadly defined as the way people make sense of and respond to their social world (Fiske & Taylor, 1991; Kunda, 1999). There are two main components of social cognition that may be affected by social-environmental risk factors. The first is *general knowledge structures*, which include individuals' views of themselves, other people, and the world more broadly. These are typically referred to as social schemas by social psychologists (Kunda, 1999) and internal working models by attachment theorists (Bowlby, 1973). The second main component of social cognition is *social information processing*. This includes the way people perceive situations, make judgments about other people's intents or motives, and make decisions about how to respond in those situations (Crick & Dodge, 1994; Dodge, Pettit, McClaskey, & Brown, 1986). Although previous research on social cognition has lacked a focus on etiology and development, there is some literature that suggests that social relationships and environmental experiences may influence the development of these processing patterns.

Social Rejection, Social Cognition, and Aggression

Support for the influence of social relationships on the development of negative social-cognitive processing styles and aggression comes from research on

attachment. According to attachment theory, negative general knowledge structures of the self and others (i.e., internal working models; Bowlby, 1973) are influenced by the consistency and responsiveness of the primary caregivers during early childhood. From these experiences, the child concludes whether or not other people generally respond to calls for support and comfort, are dependable, and will be available when needed. Also from these experiences, the child infers whether or not she/he is worthy of support from others (Bowlby, 1973).

Attachment theory suggests that under extreme conditions, such as neglect, abuse, or severe disciplinary practices, children develop negative views of the self and others (Cicchetti & Toth, 1995). It is likely that these general knowledge structures influence the way maltreated children process ambiguous and potentially threatening social interactions (Burks, Laird, Dodge, Pettit, & Bates, 1999). A longitudinal study showed that children who had experienced harsh physical punishment were at greater risk for displaying negatively biased social-cognitive processing styles and aggressive behavior (Dodge, Bates, & Pettit, 1990; Dodge, Pettit, Bates, & Valente, 1995). It is less clear whether these same effects occur for non-physical and milder forms of maltreatment, such as parental rejection.

While attachment theorists and researchers examining general knowledge structures have traditionally focused on experiences with the primary caregiver during infancy and early childhood (Bretherton & Munholland, 1999), we propose that rejection experiences during adolescence will have a similar and perhaps reinforcing effect on negative views of self and/or others and aggressive behavior. We also extend this association to include social rejection by peers.

Peers play an important part in social development during adolescence (Eccles, Templeton, Barber, & Stone, 2003). For many youth, relationships with peers serve as a source of social support, but for aggressive youth, they may serve as an additional

source of risk (Dodge et al. 2003; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1998). We explore the possibility that adolescents who have experienced rejection by parents and peers will demonstrate the highest levels of aggression. It is also possible that having the social support of either parents or peers will serve to buffer rejection by the other. Consequently, we examine both parental rejection and peer rejection as possible social-environmental risk factors for aggression that may be mediated by biased social-cognitive processing.

Violence Exposure, Social Cognition, and Aggression

Human ecological theory (Bronfenbrenner, 1979) posits that the environmental context has considerable influence on development and behavior. One such social-environmental risk factor that has been linked with aggression is witnessing violence (Garbarino, 2001; Osofsky, 1997; Tolan, Gorman-Smith, & Henry, 2003), and these effects may be mediated by aspects of social cognition. More specifically, exposure to violence may either validate or contribute to the formation of negatively biased social-cognitive styles, especially when coupled with social rejection.

Social learning theory suggests that violence exposure may affect aggressive behavior (Bandura, 1973, 1977) through aspects of social cognition. First, witnessing violence may influence the formation of or possibly validate a negative or hostile view of others (i.e., influencing general knowledge structure) (Nasby, Hayden, & DePaulo, 1980). Second, it may model aggression as an effective, normative, and justified way of resolving conflict or obtaining desired goals (i.e., affecting social information processing) (Bandura, 1973; Huesmann, 1988; Huesmann & Guerra, 1997). Empirical research suggests that with high levels of exposure to violence, aggressive behaviors become the automatic or default response when a threat is perceived (Hart, Ladd, & Burleson, 1990; Huesmann, 1998; Huesmann & Guerra, 1997). We propose that children who have witnessed violence will tend to interpret ambiguous social cues as

being hostile, automatically think of aggressive ways to respond, and believe it to be appropriate, normative, and justified to respond aggressively.

The vast majority of the studies examining the effects of community violence exposure have included samples from urban areas (e.g., Washington, D.C., New Orleans, Chicago), where at the time the study was conducted, the rates of homicide and serious violence were well above the national level (for a review see Osofsky, 1997). It is unclear to what extent these findings generalize to adolescents in less violent environments. Few studies have examined the potential effects of community violence exposure in suburban areas where presumably the effect size is much smaller.

Overview of Present Study

The present study examines how two types of social-environmental risk factors (i.e., social rejection and community violence exposure) relate to social-cognitive factors and aggressive behavior during adolescence. Data were collected from a sample of normative adolescents attending a large suburban high school to address the following four research questions.

1) Is there an interaction between the effects of parental rejection and peer rejection on adolescents' aggression?

2) Is there a significant association between community violence exposure and aggression for adolescents living in a suburban community?

3) Is there an interaction between the effects of community violence exposure and social rejection on aggression?

4) Is the effect of social-environmental risk factors on aggression mediated by social-cognitive factors (see Figure 3.1)?

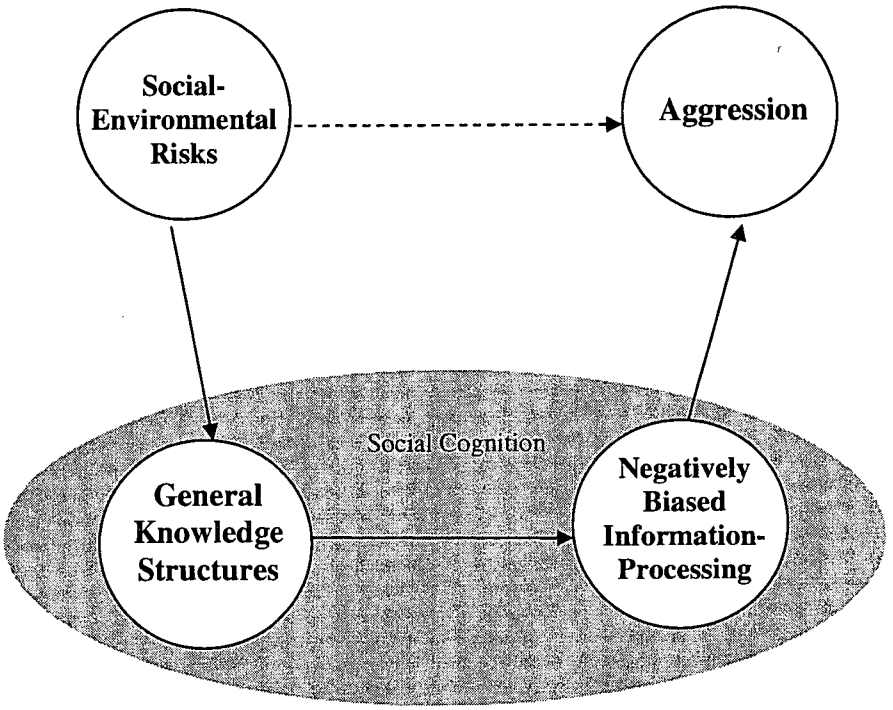

Figure 3.1. Hypothesized mediational model.

Method

Participants

Participants included 184 adolescents who were between the ages of 14 and 17 (M = 14.97, SD = .837) and enrolled at a suburban high school in upstate New York. The sample was 87.5% White (2.7% Black/African American, 2.7% Asian American) and 56% female. School-level demographic information and characteristics for the academic years during which these data were collected are reported in Table 3.1.

Adolescents were recruited to participate in a study of "relationships and problem solving" through announcements made by the researcher in the students' homeroom. A total of nine homerooms participated across two academic years. All participation was voluntary. The adolescents and a legal guardian/parent provided

written consent for participation. The study was approved by the University Committee on Human Subjects at the researcher's institution.

Table 3.1. Characteristics of school from which participants were recruited.

Characteristics of School and Student Body[†]	
▪ *Total Enrolment (9^{th} – 12^{th})*	2,707 students
▪ *Race/Ethnicity of Student Body*	89.7% White 5.8% Black/African American 3.1% Asian
▪ *Eligible for Free or Reduced Lunch*	9%
▪ *Total Noncompleters (i.e., dropped out of high school or entered GED program)*	4.4%
▪ *Graduates Who Went on to Attend College*	49% to attend 4-year college 29% to attend 2-year college

[†] The name of the school district is withheld for confidentiality purposes.
Source: New York State Education Department (2004).

Materials[6]

Social-environmental risk factors. Two major types of risk factors were examined in the present study. *Social rejection* was assessed through participants' reports on the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987), which includes items regarding alienation, lack of trust, and poor communication in relationships with parents and peers. Ten items assessed parental rejection and ten items assessed peer rejection (Cronbach's alphas (α) = .82 for parent and .84 for peer). Teachers also provided information regarding participants' social rejection by responding to two items (i.e., "Is disliked, teased, or rejected by other students" and "Has a lot of friends"; α = .80). Responses across all three scales (two

[6] All questionnaire materials for this study are provided in Appendix B.

self-report and one teacher-report) were scored with higher values indicating more rejection. A composite social rejection score was computed by averaging the two peer rejection scores with the parental rejection score. *Community violence exposure* was the second form of social-environmental risk examined. Participants responded to ten items from the Things I Have Seen and Heard Scale (Richters & Martinez, 1990), indicating how many times they have witnessed different types of violence and crime.[7] See Table 3.2 for a list of the violence exposure items ($\alpha = .81$).

Table 3.2. Items on the violence exposure measure with percent of participants who reported witnessing one or more incident of each form.

Violence/Crime Exposure Items	% Participants ($N = 184$)
Seen someone being beaten-up	86
Seen someone being arrested by the police	72
Seen drug deals	61
Heard guns being shot	46
Seen somebody pull a knife on another	35
Seen gangs in my neighborhood	32
Seen somebody pull a gun on another	15
My house has been broken into	13
Seen someone get stabbed	7
Seen someone get shot or shot at	7

General knowledge structures. To assess general *view of self*, participants completed five items from the Rosenberg Self-Esteem Scale (Rosenberg, 1965) and the Single Item Self-Esteem measure (i.e., "I have high self-esteem"; Robins, Hendin, & Trzesniewski, 2001). Participants indicated on a four-point Likert scale how accurately each statement described themselves. Items were reverse scored, such that a

[7] Participants were instructed not to include violence exposure through the media (e.g., on TV or in movies).

higher score indicated a more negative self-view ($\alpha = .81$). To assess general *view of others*, participants completed the Assessment of Schema Typicality Scale (Burks et al., 1999), in which they reviewed pairs of terms where one was positive (e.g., approachable) and the other was negative/hostile (e.g., unreachable). Participants indicated which of the two terms best described "their parents/caregivers", "teachers at their school", or "other students at their school". The scores from all three domains were averaged, thus yielding one aggregate score with higher scores indicating a more negative or hostile knowledge structure of other people ($\alpha = .75$).

Social information processing. Dodge and colleagues (1986) proposed an aggressogenic information processing sequence that includes a hostile attribution bias, aggressive response generation, and justification of aggression responses to threat. In the present study, we used a written hypothetical situations task similar to the instrument originally developed for use with children by Dodge and Frame (1982), but adapted for use with adolescents and young adults by Bradshaw and Hazan (2004). Participants read four vignettes, each of which involved ambiguous behavior on the part of a peer (i.e., the peer is observed holding the participant's bag, uses his/her pencil without permission, spills a drink on the participant, and hits the participant with a ball). After reading each scenario, participants wrote a brief statement regarding their interpretation of the provocateurs' intent and their own likely response.

Hostile attribution bias was assessed by the degree of hostility participants inferred regarding the peers' intents in the four vignettes. Hostility was rated on a seven-point scale, with low scores assigned to positive motives and high scores assigned to aggressive motives ($\alpha = .62$). The coding scheme is described in greater detail below.

Aggressive response generation was assessed by the degree of hostility in what participants reported as their own likely response in the four vignettes. This was also rated on a seven-point scale ($\alpha = .62$).

Justification of aggression was assessed by four items regarding the perceived legitimization or appropriateness of aggressive responses to threat (Huesmann, Guerra, Miller, & Zelli, 1992). Participants indicated on a seven-point Likert scale the degree to which they agreed with statements such as "It is OK for me to hit someone if they start a fight on my turf" and "If people do something to make me really mad, they deserve to be beaten-up" ($\alpha = .85$). Responses across the four items were averaged with higher scores indicating greater support for aggressive behavior.

Aggressive behavior. To assess aggressive behavior, data were collected from the participants and their teachers. The adolescents responded to nine items from the Aggression Questionnaire (Buss & Perry, 1992) regarding their use of physical aggression ($\alpha = .80$) and verbal aggression ($\alpha = .73$). These two scales assessed the overt components of aggression (e.g., physically hitting, attacking, yelling at, or injuring someone), rather than the covert forms of anger and hostility. Teachers completed 14 items from the aggressive behavior scale of the Teacher's Report Form (Achenbach, 2001), which included items such as "gets into fights" and "threatens people" ($\alpha = .97$). Scores across the three scales (two self-report and one teacher-report) were averaged to yield a composite aggressive behavior scale.

Relational aggression. Participants responded to four items regarding their use of reactive forms of *relational aggression* (e.g., "If others have hurt me, I try to keep them from being in my group of friends" and "When I am mad at someone, I often gossip or spread rumors about them;" $\alpha = .66$). These items were adapted from measures used by Little, Jones, Henrich, and Hawley (2003) and Crick and Grotpeter (1995). Teachers responded to four items regarding the same relationally aggressive

behaviors ($\alpha = .91$). Scores across the self-report and teacher-report scales were averaged to yield a composite relational aggression score.

Procedure

Adolescent participants completed all of the study materials in group testing sessions during their homeroom period. Participation rate was approximately 70% of all students recruited. Adolescents were compensated with $10 cash for participating in the study.

Each participating student's homeroom teacher completed an assessment regarding the student's behavior. The teachers reported having "known the student" between 2 and 28 months ($M = 8.12$, $SD = 3.99$, Mode = 9 months). The eight participating teachers[8] (100% female) were each provided a $20 gift card to a bookstore and a book on child development.

Coding of the hypothetical situations task data. Intent and response statements were entered verbatim into separate electronic databases. Three undergraduate research assistants who were unaware of the study hypotheses were trained to independently code the exhaustive lists of the participants' intents and responses. The seven-point coding scheme was based on a three-point scheme developed by Dodge and Frame (1982) to rate children's responses in a similar hypothetical situations task. Coders were instructed to assign low scores to positive intents, moderate scores to ambiguous intents, and high scores to aggressive intents. Similarly, coders assigned low scores to positive responses, moderate scores to ambiguous responses, and high scores to aggressive responses. Intent and response scores across all four vignettes were averaged, yielding one score for hostile attribution bias and one for response generation, respectively.

[8] Two teachers declined the invitation to participate in the study. One of the eight teachers participated in both waves of the data collection.

Overview of Analyses

A series of analyses was conducted to address each of the four research questions. The first research question explored whether there was an interaction between the effects of the two forms of social rejection (peer and parent) on aggression. The second examined the main effect of community violence on aggression. The third research question examined the interaction between the effects of social rejection and community violence on aggression. Correlational and ordinary least squares (OLS) regression procedures in SPSS were used to address these three questions.

The fourth research question regarding mediation was examined using structural equation modeling (SEM) procedures (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Four latent variables (social-environmental risks, general knowledge structures, negatively biased social information-processing, and aggression) were created and incorporated into the structural model. Analyses were conducted in the AMOS 4.0 program with maximum likelihood estimation to assess whether the association between social-environmental risks and aggression was mediated by negatively biased social-cognitive processing patterns (see Figure 3.1).

To evaluate the overall fit for the models, a χ^2 statistic was computed for each model and examined in conjunction with other indices for assessing fit (i.e., χ^2/df, NFI, CFI, RMSEA; Bollen, 1989; Kline, 1998). If the effect of risk on aggression is mediated, the direct effect on aggression should be attenuated by the presence of the social-cognitive variables. This would indicate that a significant portion of the effect of risk occurs through the mediating variables (Baron & Kenny, 1986; Kline, 1998). The fit of alternative models, such as those testing different mediating variables and the direct effects of general knowledge structures and negatively biased social

information processing on aggression, were also examined and compared to the fit of the hypothesized mediational model (Figure 3.1).

Results

Preliminary Analyses

Analyses were conducted to test the assumptions regarding multivariate normality, and all assumptions were met (Bollen, 1989). There were no differences by homeroom, so the data were pooled. Analyses were also conducted to determine if there were any significant interactions involving gender. No gender differences were observed for relational aggression, F (1, 182) = .14, p>.10,[9] but males reported higher levels of aggressive behavior, F (1, 182) = 6.42, p<.05, η^2 = .03, and violence exposure, F (1, 182) = 4.45, p<.05, η^2 = .02, whereas girls reported higher levels of social rejection, F (1, 182) = 6.12, p<.05, η^2 = .03. There were no significant interactions between the effects of gender and either form of social rejection on aggressive behavior nor was there a significant interaction between the effects of gender and crime on aggressive behavior. Given that there were no significant interactions involving gender and no specific hypotheses regarding gender differences, the following analyses were conducted with the full sample.

Social Rejection, Social Cognition, and Aggression

To explore the first research question regarding whether there was an interaction between the effects of parental rejection and peer rejection on aggression, four sets of OLS regression analyses were conducted. The first two sets of analyses examined the effects on aggressive behavior, whereas the latter two sets examined the effects on relational aggression. The results of all four sets of regression analyses are reported in Table 3.3.

---

[9] No significant gender differences were observed for the self-report F (1, 182) = .26, p >.10, or teacher-report measures, F (1, 143) = .10, p >.10, of relational aggression.

The first set of regression analyses indicated significant direct effects of parental rejection and peer rejection on aggressive behavior, but the interaction term was not significant. The second set of analyses showed that the composite rejection score yielded a similar direct effect of social rejection on aggressive behavior. Parental and peer rejection had similar effects on aggressive behavior, which is adequately reflected by the composite social rejection score. These analyses indicated that over 20% of the variance in aggressive behavior was accounted for by the direct effects of social rejection (see Table 3.3).

The third and fourth sets of regression analyses examined the direct effects of parental rejection and peer rejection on relational aggression. The third set (reported in Table 3.3) indicated that parental rejection had a significant direct effect and peer rejection had a marginally significant effect on relational aggression, but the interaction term was not significant. The fourth set of analyses showed that the composite rejection score yielded a similar effect to the parental and peer rejection scores. These analyses indicated that only about 5% of the variance in relational aggression is accounted for by social rejection, but the composite social rejection score sufficiently accounts for these relations.

To assess whether the composite social rejection score was related to the mediating variables of negatively biased social-cognitive processing, we examine the descriptive and correlational data reported in Table 3.4. The composite social rejection score was significantly correlated with both aspects of general knowledge structures, as well as two of the three information processing variables, and both forms of aggression. All associations were in the predicted directions.

Taken together, these analyses on the social rejection data indicate the following. First, there were no interactions between parental and peer rejection with regard to either form of aggression. Second, the overall experience of rejection is

Table 3.3. The results of four separate OLS regression analyses assessing whether the effects of rejection on either form of aggression vary by source (parents vs. peers).

Regression Predicting Aggressive Behavior			*B*	*SEB*	*β*	R^2	Adj.R^2	ΔR^2
Set 1								
	Step 1	Parental Rejection	.27	.07	.26**	.22	.22	
		Peer Rejection	.41	.08	.34**			
	Step 2	Parent X Peer Rejection	<.01	<.01	-.17	.24	.22	.01
Set 2								
	Step 1	Social Rejection Composite Score	.69	.09	.49**	.24	.23	
Regression Predicting Relational Aggression								
Set 3								
	Step 1	Parental Rejection	.17	.07	.18*	.06	.05	
		Peer Rejection	.14	.08	.13†			
	Step 2	Parent X Peer Rejection	<.01	<.01	-.02	.06	.05	<.01
Set 4								
	Step 1	Social Rejection Composite Score	.30	.09	.23**	.05	.05	

† $p<.10$, *$p<.05$, **$p<.01$

Table 3.4. Means, standard deviations, and correlations for variables comprising social-environmental risks, general knowledge structures, social information processing, and aggression.

Variables	*M(SD)*	1	2	3	4	5	6	7	8
Social-Environmental Risks									
1. Social Rejection	2.15(.74)	--							
2. Violence Exposure	6.14(4.66)	.21**	--						
General Knowledge Structures									
3. Negative View of Self	1.36(.67)	.39**	.08	--					
4. Negative View of Others	3.17(1.46)	.40**	.12†	.40**	--				
Social Information Processing									
5. Hostile Attribution Bias	4.47(8.3)	.13†	.19*	.10	.16*	--			
6. Response Generation	4.36(.88)	.30**	.37**	.08	.29**	.37**	--		
7. Justification of Aggression	3.00(1.51)	.35**	.43**	.11	.24**	.24**	.53**	--	
Aggression									
8. Aggressive Behavior	2.78(1.04)	.49**	.37**	.24**	.35**	.27**	.45**	.59**	--
9. Relational Aggression	3.39(.94)	.23**	.09	.11	.17*	-.03	.24**	.30**	.38**

† $p<.1$, * $p<.05$, ** $p<.01$

sufficiently accounted for by the composite social rejection score. Consequently, all the analyses that follow were conducted on the composite social rejection score (from here on referred to as social rejection). Third, there were direct effects of social rejection on both forms of aggression. This is a necessary but not sufficient criterion for mediation (Baron & Kenny, 1986). Fourth, social rejection was correlated with four of the five variables comprising the hypothesized mediator social cognition. This is another necessary but not sufficient criterion for mediation (Baron & Kenny, 1986).

Violence Exposure, Social Cognition, and Aggression

To explore the second research question regarding the relation between violence exposure and aggression in suburban adolescents, we examined the overall rate of exposure to different types of violence and crime. The percent of participants who witnessed each of the ten types of violence are reported in Table 3.2. For comparative purposes, a subset of these data is presented in Table 3.5 along with rates of exposure reported by a sample of urban youth from a study by White, Bruce, Farrell, and Kliewer (1998). These data suggest that there were similar levels of exposure to the milder forms of violence; however, the two samples differed when it came to witnessing severe forms of violence. For example, half as many suburban adolescents reported hearing gunshots, a fourth as many witnessed someone get stabbed, and a fifth as many witnessed someone get shot. Although there are numerous differences between the two samples (e.g., age, ethnic composition, year when data was collected) and it is unclear how well the findings from either sample generalize to other communities, a sizable proportion of adolescents in both the urban and suburban samples reported being exposed to violence.

Returning to the data for the present study, the mean number of different forms of violence witnessed was 3.74 (SD = 2.13), with a mode of 3 different forms. The correlational data reported in Table 3.4 indicate there was a significant association

between violence exposure and aggressive behavior, despite the fact that comparatively fewer incidents of serious violence were witnessed by the present sample of suburban adolescents, r (184) =.37, p<.001. To determine whether severity of violence influenced the strength of association with aggressive behavior, we disaggregated the violence exposure variables into two subscales: serious violence (e.g., seeing a stabbing, seeing someone get shot) and milder forms of violence (e.g., seeing someone get arrested, seeing drug deals). When examined in relation to aggressive behavior, there was little difference in the strength of associations for the two types of violence exposure. In fact, the correlation between milder forms of violence exposure and aggressive behavior was slightly, but not significantly stronger, r (184) = .35, p<.001, than between serious violence and aggressive behavior, r (184) = .32, p<.001. These findings suggest that even at relatively low levels, community violence exposure poses a risk for adolescents' development and/or persistence of aggressive behavior.

Table 3.5. A comparison of the rate of violence exposure across two samples of adolescents. Data in the left column are from the present sample of 184 participants (age 14 to 17). Data in the right column were extracted from a study by White et al. (1998) of 385 adolescents (age 11 to 14). Both studies use the Things I have Seen and Heard measure (Richters & Martinez, 1990) to assess violence exposure.

Violence/Crime Exposure Items	% Suburban Adolescents	% Urban Adolescents
Seen someone being beaten-up	86	91
Seen someone being arrested by the police	72	86
Seen drug deals	61	79
Heard guns being shot	46	94
Seen someone get stabbed	7	28
Seen someone get shot or shot at	7	37

The correlations between community violence exposure and the variables comprising the mediator, social cognition, are reported in Table 3.4. Violence exposure was only marginally correlated with one aspect of general knowledge structures, but was significantly correlated with all three of the information processing variables, and one form of aggression. All associations were in the predicted directions.

Taken together, the analyses on the violence exposure data indicate the following. First, in comparison to urban youth, the (suburban) participants in the present sample reported witnessing roughly the same rates of milder forms of violence, but fewer serious forms of violence. Second, violence exposure was significantly correlated with aggressive behavior, but not relational aggression. However, the association between violence exposure and aggressive behavior did not vary by the severity of violence witnessed. Third, exposure was significantly associated with one of the components of the social-cognitive mediator (social information processing). This pattern of findings suggests that violence exposure may have a stronger association with social information processing than with general knowledge structures and has potential implications for the specification of the hypothesized mediational model.

Interaction between Social Rejection and Violence Exposure

To examine whether there was an interaction between the effects of social rejection and violence exposure on aggression, we conducted OLS regression analyses in SPSS (see Table 3.6). The two sources of risk collectively accounted for 30% of the variance in aggressive behavior in the first step of the analysis; however, the addition of the interaction term in the second step did not result in a significant improvement in the model, because the interaction term was not significant.

Table 3.6. The results of two separate OLS regression analyses assessing whether there is an interaction between the effects of social rejection and community violence on either form of aggression.

Regression Predicting Aggressive Behavior		*B*	*SEB*	*β*	R^2	Adj.R^2	ΔR^2
Step 1	Social Rejection	.60	.09	.43**	.31***	.30***	
	Violence Exposure	.06	.01	.28**			
Step 2	Social Rejection X Violence Exposure	.03	.02	.33	.32***	.31***	<.01
Regression Predicting Relational Aggression							
Step 1	Social Rejection	.28	.09	.22**	.06**	.05**	
	Violence Exposure	.01	.02	.05	.06		
Step 2	Social Rejection X Violence Exposure	.01	.02	.20	.06	.04	<.01

A similar OLS regression analysis was conducted to examine whether there was an interaction between the effects of the two forms of risk on relational aggression. The two risk factors accounted for 5% of the variance in relational aggression in the first step of the analysis; however, the addition of the interaction term in the second step did not result in a significant improvement in the model because the interaction term was not significant. In sum, these analyses indicated that there were no significant interactions between the two types of social-environmental risks on either form of aggression. It is worth noting, however, that the two social-environmental risk factors accounted for a larger portion of the variance in aggressive behavior (30%) than relational aggression (5%).

Mediational Analyses Examining the Association between Risk and Aggression

In order to test the hypothesized mediational model (see Figure 3.1), four latent variables were constructed as follows: *social-environmental risk* was comprised of the violence exposure and social rejection variables; *general knowledge structures* was comprised of the negative view of self and negative view of others measures; *negatively biased social information-processing* was comprised of hostile attribution bias, response generation, and justification of aggression; and *aggressive behavior* was comprised of aggressive behavior and relational aggression.

The analyses with SEM indicated that the hypothesized model best fit the data with a slight modification, χ^2 (21, 184) = 24.615, p =.264, χ^2 /df = 1.172, NFI = .994, CFI = .999, RMSEA = .031 (see Figure 3.2), thus accounting for 71% of variance in aggression (Kline, 1998). The model (referred to from here on as the baseline model) included an additional link between violence exposure and negatively biased information processing. The inclusion of this link proved helpful for fitting the model, and is supported by social learning theory (Huesmann, 1998). Previous research indicates that witnessing violence has a major influence on aspects of social

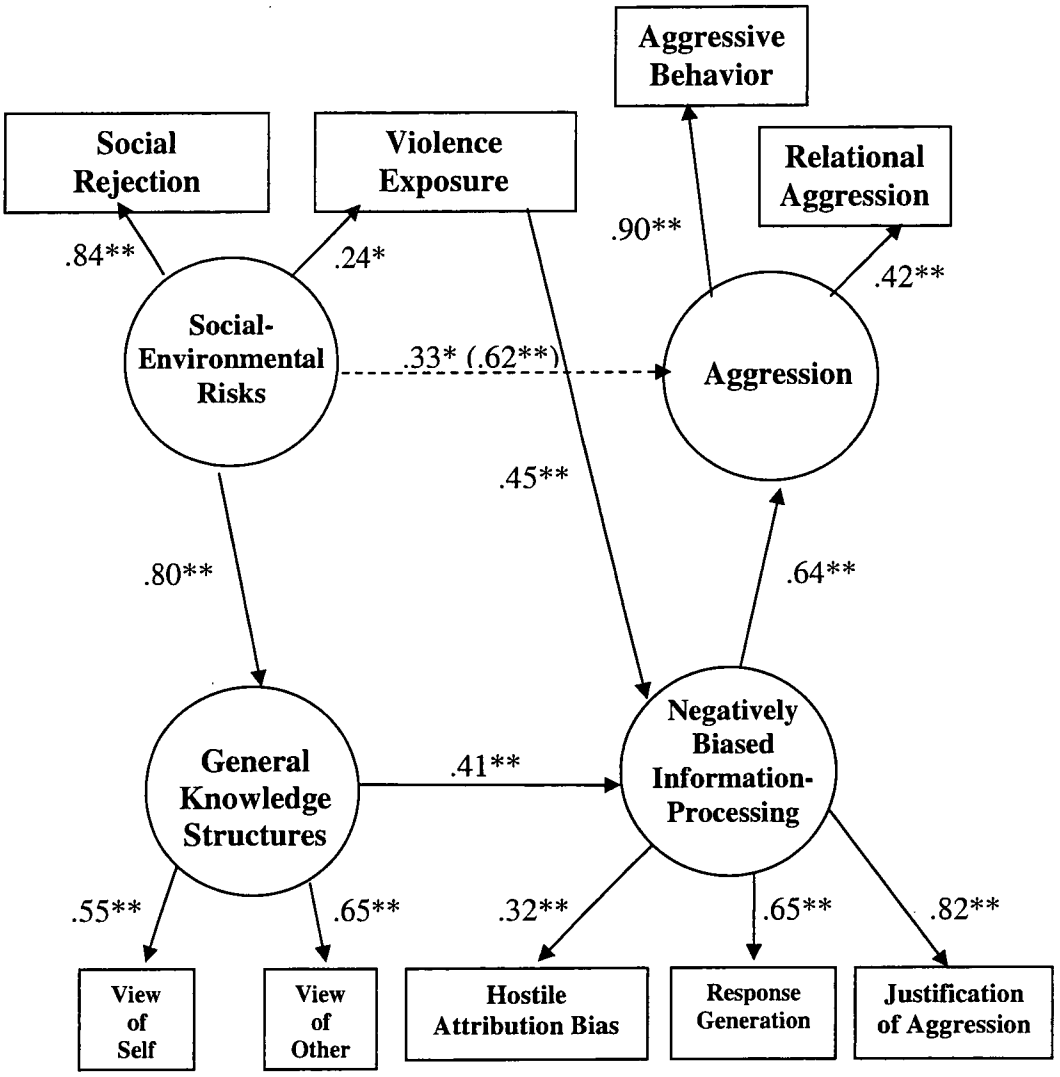

Figure 3.2. Baseline mediational model (N = 184 adolescents). Social-environmental risks, general knowledge structures, negatively biased social information-processing, and aggression were modeled latent variables (shown in ellipses). Total effect of social-environmental risks on aggression is reported in parentheses, χ^2 (21, 184) = 24.615, p =.264, χ^2 /df = 1.172, NFI = .994, CFI = .999, RMSEA = .031. The model accounts for 71% of the variance in aggression. * p<.05, ** p<.01.

information processing, in particular the beliefs-related components of justification of aggression and response generation (Shahinfar, Kupersmidt, & Matza, 2001). The correlational data from the present study illustrate this strong association between violence exposure and aspects of social information processing; the correlations

ranged from r =.19 (184), p<.05 for hostile attribution bias to r = .43 (183), p<.001 for justification of aggression (see Table 3.4).

Returning to the baseline model reported in Figure 3.2, the inclusion of the mediating social-cognitive variables reduced the association between social-environmental risk and aggression from β=.62 (p<.001) to β=.33 (p<.05); however, the direct effect was still significant. This indicated that negatively biased social cognition partially mediated the effect of risk on aggression (Baron & Kenny, 1986). Although it was not a case of full mediation, more than 45% of the effect (i.e., |indirect/total|) = |.28 /.62|) occurred through the mediating social-cognitive variables (Bollen, 1989; Dodge, Laird, Lochman, & Zelli, 2002).

Alternative model. Given the strong relation between witnessing violence and negatively biased social information processing, and a lack of significant correlation between violence exposure and either component of general knowledge structures, the baseline model was respecified by breaking apart the latent variable social-environmental risk into its two manifest variables: violence exposure and social rejection (see Figure 3.3). The alternative model also fit the data, χ^2 (23, 184) = 34.38, p =.06, χ^2 /df = 1.495, NFI = .991, CFI = .997, RMSEA = .052, which accounted for 67% of the variance in aggression. A test on the difference in chi-square values (i.e., $\Delta\chi^2$ = 9.76 (= 34.38-24.62) at 2 *df*) between the baseline and the alternative models was significant (p<.01). The fit indices suggest that the data better fit the baseline model than the alternative model.[5] We also tested other alternative models with different exogenous and endogenous variables, but none fit the data significantly better than these two models.

---

[5] Although neither chi-square test on the overall model fit was significant, the alternative model was only marginally not significant (p =.06), whereas the baseline model was clearly not (p = .26). The RMSEA for the baseline model was less than the ideal cut off of .05, whereas the alternative model was within the acceptable range of less than .08 (Kline, 1998). Lastly, the CFI and NFI indices were slightly higher for the baseline model than for the alternative model (Bollen, 1989; Kline, 1998).

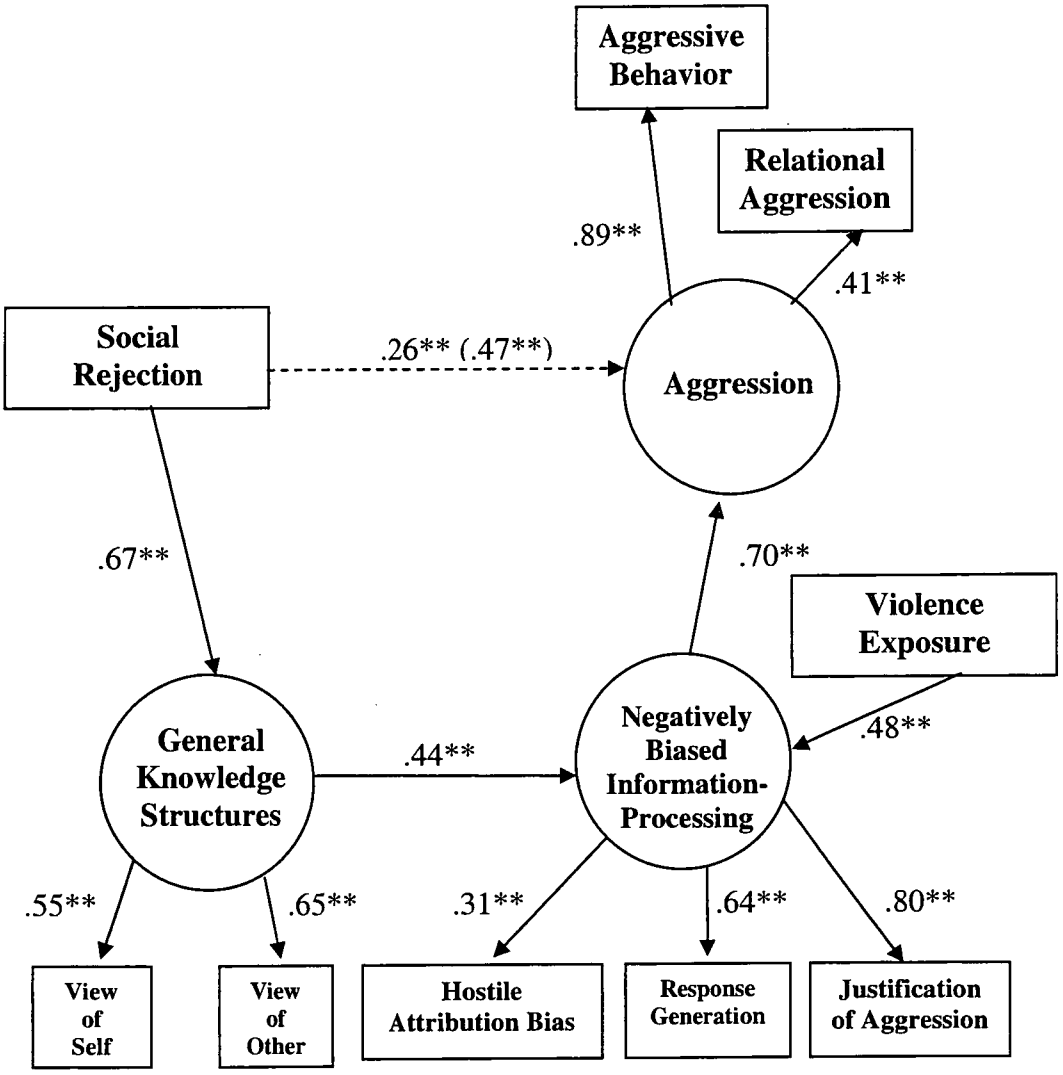

Figure 3.3. Alternative mediational model (N = 184 adolescents). General knowledge structures, negatively biased social information-processing, and aggression were modeled latent variables (shown in ellipses). Social rejection and violence exposure were modeled as manifest variables (shown in rectangles). Total effect of social rejection on aggression is reported in parentheses, χ^2 (23, 184) = 34.38, p =.06, χ^2 /df = 1.495, NFI = .991, CFI = .997, RMSEA = .052. The model accounts for 67% of the variance in aggression. * p<.05, ** p<.01.

Taken together, the results of the mediational analyses on the baseline and alternative models led to the following two conclusions. First, social rejection and violence exposure were risk factors associated with higher levels of aggression, and

these effects were partially mediated by aspects of social cognition. Second, witnessing violence appeared to have the greatest influence on negatively biased information processing whereas social rejection appeared to have a greater influence on general knowledge structures.

Discussion

The present study examined the hypothesis that social rejection and violence exposure influence the development of general views of the self and other people in a manner that negatively biases the way social information is processed. These factors in turn are theorized to increase the likelihood of aggressive responses to threat (Bradshaw & Garbarino, 2004). While previous research has linked aspects of negatively biased social-cognitive processing with harsh physical punishment during early childhood (e.g., Dodge et al., 1990, 1995), the present study examined whether a similar association occurs for social rejection and violence exposure in a sample of normative, suburban adolescents.

Social Rejection and Aggression

The first set of analyses explored whether there was an interaction between parental rejection and peer rejection. We anticipated that youth who were rejected by their parents but were supported by their peers might evidence a reduction in the level of aggression – suggesting a buffering effect by peer social support. Perhaps, the opposite could also occur, whereby parental support buffers the negative effects of peer rejection. However, the interaction terms for neither aggressive behavior nor relationally aggressive behavior were significant.

One possible reason for the lack of an interaction effect is that youth who are rejected by their parents may also be rejected by their peers. Parental rejection and peer rejection were moderately correlated, $r\,(184) = .26$, $p>.001$. Although the causal ordering of rejection experiences cannot be determined in the present study, previous

research has shown that children who are abused (and/or rejected by their parents) are at risk for developing adjustment problems, such as aggression, poor social skills, and difficulty regulating emotions (Cicchetti & Lynch, 1995). Their diminished social skills and/or aggressive behavior put them at risk for subsequent rejection by peers (Dodge, Coie, & Brakke, 1982). In fact, several studies have found that aggressive children are often rejected by their peers because their behavior is perceived as aversive (Buhs & Ladd, 2001; Laird et al., 2001; Schwartz et al., 1998). Thus, peer rejection could be a consequence of aggressive behavior which increases the risk for future aggressive behavior (Dodge et al., 2003).

This illustrates the transactional nature of rejection and aggressive behavior, at least during childhood (Cicchetti, Toth, & Maughan, 2000). However, the associations are less clear during adolescence. A recent study found that for adolescents, relational and overt aggression were correlated with popularity, but after controlling for relational aggression, the association between overt aggression and popularity was not significant (Rose, Swenson, & Waller, 2004). Another study found that adolescent girls who used threats of violence, intimidation, and physical aggression were often viewed by other peers as being at the top of the "pecking order" during middle school and high school (Phillips, 2003). Additional research with longitudinal data is needed to examine the complex associations among parental rejection, peer rejection, gender, and aggressive behavior during adolescence.

Violence Exposure and Aggression

Under extreme circumstances, there is likely an adaptive function of negatively biased social-cognitive processing styles. For example, inferring a hostile intent is advantageous for children who are chronically exposed to violence in the community or home. They unfortunately *need* to be "on their guard" because threats are often followed by violence in these contexts (Bell & Jenkins, 1991, 1993; Garbarino,

Dubrow, Kostelny, & Pardo, 1992). Similarly, the tendency of abused children to interpret ambiguous behaviors as hostile and to be hypersensitive to cues of threat is theorized to warn the child of potential danger and/or rejection (Dodge et al., 1995; Pollak, Cicchetti, Hornug, & Reed, 2000). Early detection of possible cues of threat provides a narrow window of opportunity for the child to either flee or defend himself/herself (Perry, Pollard, Blakley, Baker & Vigilante, 1995; Rieder & Cicchetti, 1989). This negative or aggressive bias is protective, but only given a context of violence. It tends to be problematic when over-generalized or applied in unwarranted situations (Baldwin, 1992; Zelli, Dodge, Lochman, & Laird, 1999).

For the participants in the present study, the environmental risks are comparatively lower. Given the low base-rate of serious violence witnessed, it was uncertain whether a significant relation would be observed. But in fact, there was a significant association between community violence, negatively biased social information processing, and aggressive behavior (see Table 3.4). The strength of association did not vary by level of severity, thus suggesting that children can be negatively affected by even mild forms of crime and violence, such as seeing gangs, drugs being sold, or someone being arrested. This finding is especially important, for it indicates that violence exposure is an important risk factor for aggression, even at low levels.

Overt Aggression vs. Relational Aggression

The majority of the effects observed in the present study were stronger for aggressive behavior than for relational aggression (see Table 3.4). Two of the three social information processing variables (i.e., response generation and justification of aggression) were significantly correlated with relational aggression. This is not surprising since the items comprising these measures focused on physical types of threat and provocation, rather than relational forms. Physical threats are typically

responded to with physical aggression, whereas relational threats tend to be responded to with relational aggression (Crick, Bigbee, & Howes, 1996).

Crick and colleagues (1986) have shown that children who use relational aggression tend to be more sensitive to and infer greater hostility in situations or provocations that involve relational aggression, whereas children who use physical forms of aggression tend to be more sensitive to and infer greater hostility in provocations that involve physical aggression. Research with preschoolers indicates that relational aggression is associated with peer rejection (Crick, Casas, & Mosher, 1997), although it not clear which comes first – the rejection or the aggression. The present data evidenced an association between social rejection and relational aggression, r (184) = .23, p<.01; the correlation with parental rejection, r (184) = .22 p<.00, was slightly higher than with peer rejection, r (184) = .17 p<.05. But as noted above, the social significance and ramifications of relational aggression may be different during childhood than adolescence (Rose et al., 2004).

Some researchers (e.g., Crick et al., 1996) have observed a gender difference related to relational aggression, such that girls tend to be more sensitive to and use more relationally aggressive strategies, whereas the opposite is true for boys (cf. Xie, Swift, Cairns, & Cairns, 2002). As stated above, we did not observe a significant gender difference in relational aggression. It is important to note that the measure used in the present study focused specifically on reactive forms of relational aggression (Little et al., 2003). There is some evidence that more general acts of relational aggression (e.g., spreading rumors, gossiping, exclusion) may occur for complex social reasons, such as gaining or maintain social status and creating exclusive social relationships, or simply for entertainment (for a review see Underwood, 2003). Consequently, these general forms of relational aggression may be less relevant to the hypothetical situations task used in the present study. Furthermore, there is some

evidence that the aspects of social information processing examined in this study relate primarily to reactive forms of aggression, rather proactive or predatory aggression (Crick & Dodge, 1996; Dodge, Lochman, Harnish, & Bates, 1997). Future research will examine more closely how aspects of social cognition relate to different forms of aggression, including relational aggression and whether these effects vary by gender.

Social-Cognitive Factors as a Link between Risk and Aggression

The primary focus of the study was to examine the hypothesis that social cognition mediated the effects of social-environmental risk on aggression. The OLS regression analyses indicated that there were direct effects of the two social-environmental risk factors on aggression, but there were no significant interactions between the two. The hypothesized mediational model fit the data, with one additional link between violence exposure and social information processing (see Figure 3.2). We respecified the model (see Figure 3.3) by separating violence exposure from social rejection. This alternative model also fit the data, but was not a significant improvement over the baseline model.

Taken together, the two models emphasize the association between violence exposure and the information processing aspect of social cognition. This finding is consistent with social learning theory (Bandura, 1973), which posits that individuals make new connections between what they have witnessed, the context, and their own thoughts and behavior (Huesmann, 1998). Repeated exposure to violence and aggression has been shown to be associated with scripts and beliefs about the use, appropriateness, and effectiveness of aggressive responses to threat. These biased information processing styles in turn increase the likelihood of aggressive behavior (Huesmann, 1988, 1998).

We also expected a significant association between violence exposure and general knowledge structures; however, this was not observed. Violence exposure was not significantly associated with views of the self, but was marginally significantly associated with views of others. This latter relation may be stronger at higher levels of violence exposure. Regardless of the specific route, these findings provide evidence of the influence of environmental factors on behavior, as mediated through aspects of social cognition.

With regard to social rejection, the analyses indicated that it was significantly associated with both aspects of social cognition (i.e., negative general knowledge structures and negatively biased social information processing). These findings are consistent with attachment theory (Bowlby, 1973), which contends that rejection experiences influence the development of negative views of self and others. This study provides some of the first empirical support for this previously theorized relation, and shows that these associations are present in adolescence. Furthermore, the negative views of self and others were associated with the way social information was processed, in a manner that increases the likelihood of aggressive behavior.

The present study provided evidence that both overt and relational forms of aggression are related to social-environmental risk factors and that the effects appear to operate through a series of social-cognitive mediators. The effects of social rejection may be more closely related to general knowledge structures, which is consistent with attachment theory's focus on internal working models (Bowlby, 1973). In contrast, violence exposure appears to have a greater association with negatively biased information processing. This latter finding is consistent with social learning theory (Bandura, 1973). Taken together, these findings provide support for social cognition as a mechanism through which social-environmental risk factors influence aggression during adolescence.

References

Achenbach, T. M. (2001). *Manual for the ASEBA school-age forms and profiles.* Burlington, VT: Department of Psychiatry, University of Vermont.

Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16*(5), 427-454.

Baldwin, M. W. (1992). Relational schemas and the processing of social information. *Psychological Bulletin, 112*, 461-484.

Bandura, A. (1973). *Aggression: A social learning analysis.* Englewood Clifts, NJ: Prentice Hall.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice Hall.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Bell, C. C., & Jenkins, E. J. (1991). Traumatic stress and children. *Journal of Health Care for the Poor and Underserved, 2*(1), 175-185.

Bell, C. C., & Jenkins, E. J. (1993). Community violence and children on Chicago's Southside. *Psychiatry, 56*, 46-54.

Bollen, K. A. (1989). *Structural equations with latent variables.* New York: Wiley-Interscience.

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

Bradshaw, C.P. & Garbarino, J. (2004). Social cognition as a mediator of the influence of family and community violence on adolescent development: Implications for intervention. In Scientific approaches to youth violence prevention. New

York, NY: *Annals of the New York Academy of Sciences.* Manuscript submitted for publication.

Bradshaw, C. P., & Hazan, C. (2004). Information processing as a link between esteem and aggression. Manuscript submitted for publication.

Bretherton, I., & Munholland, K. A. (1999). Internal working models in attachment relationships: A construct revisited. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 89-111). New York: Guilford Press.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Cambridge, MA: Harvard University of Press.

Buhs, E. S., & Ladd, G. W. (2001). Peer rejection as an antecedent of young children's school adjustment: An examination of mediating processes. *Developmental Psychology, 37*(4), 550-560.

Burks, V. S., Laird, R. D., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1999). Knowledge structures, social information processing, and children's aggressive behavior. *Social Development, 8*(2), 220-236.

Buss, A. H., & Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology, 63*(3), 452-459.

Cicchetti, D., & Toth, S. L. (1995). A developmental psychopathology perspective on child abuse and neglect. *Journal of the American Academy of Adolescent Psychiatry, 34*(5), 541-565.

Cicchetti, D., Toth, S., & Maughan, A. (2000). An ecological-transactional model of child maltreatment. In A. Sameroff, M. Lewis, & S. M. Miller (Eds.), *Handbook of developmental psychopathology* (3rd ed.). New York: Plenum.

Crick, N. R., Bigbee, M. A., & Howes, C. (1996). Gender differences in children's normative beliefs about aggression: How do I hurt thee? Let me count the ways. *Child Development, 67*(3), 1003-1014.

Crick, N. R., Casas, J. F., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology, 33*(4), 579-588.

Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms in reactive and proactive aggression. *Child Development, 67*, 993-1002.

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., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66*(3), 710-722.

Dodge, K. A., Bates, J. E., & Pettit, G. S. (1990). Mechanisms in the cycle of violence. *Science, 250*(4988), 1678-1683.

Dodge, K. A., Coie, J. D., & Brakke, N. P. (1982). Behavior patterns of socially rejected and neglected preadolescents: The roles of social approach and aggression. *Journal of Abnormal Child Psychology, 10*(3), 389-409.

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

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*(1), 60-73.

Dodge, K. A., Lansford, J. E., Burks, V. S., Bates, J. E., Pettit, G. S., Fontaine, R., & Price, J. M. (2003). Peer rejection and social information-processing factors in

the development of aggressive behavior problems in children. *Child Development, 74*(2), 374-393.

Dodge, K. A., Lochman, J. E., Harnish, J. D., & Bates, J. E. (1997). Reactive and proactive aggression in school children and psychiatrically impaired chronically assaultive youth. *Journal of Abnormal Psychology, 106*(1), 37-51.

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*(4), 632-643.

Eccles, J., Templeton, J., Barber, B., & Stone, M. (2003). Adolescence and emerging adulthood: The critical passage ways to adulthood. In M. H. Bornstein, L. Davidson, C. L. M. Keyes, & K. A. Moore (Eds.), *Well-being: Positive development across the life course. Crosscurrents in contemporary psychology* (pp. 383-406). Mahwah, NJ: Lawrence Erlbaum.

Fiske, S. T., & Taylor, S. E. (1991). *Social cognition.* New York: Random House.

Garbarino, J. (2001). An ecological perspective on the effects of violence on children. *Journal of Community Psychology, 29*(3), 361-378.

Garbarino, J., Dubrow, N., Kostelny, K., & Pardo, C. (1992). *Children in danger: Coping with the consequences of community violence.* San Francisco: Jossey-Bass.

Hart, C. H., Ladd, G. W., & Burleson, B. (1990). Children's expectations of the outcomes of social strategies: Relations with sociometric status and maternal disciplinary styles. *Child Development, 61*, 127-137.

Huesmann, L. R. (1988). An information processing model for the development of aggression. *Aggressive Behavior, 14*(1), 13-24.

Huesmann, L. R. (1998). The role of social information processing and cognitive schema in the acquisition and maintenance of habitual aggressive behavior. In

R. G. Geen & E. Donnerstein (Eds.), *Human Aggression: Theories, research, and implications for social policy*. San Diego, CA: Academic Press.

Huesmann, L. R., & Guerra, N. G. (1997). Children's normative beliefs about aggression and aggressive behavior. *Journal of Personality and Social Psychology, 72*(2), 408-419.

Huesmann, R., Guerra, N., Miller, L., & Zelli, A. (1992). The role of social norms in the development of aggression. In H. Zumkley & A. Fraczek (Eds.), *Socialization and aggression*. New York: Springer.

Kline, R. B. (1998). *Principles and practices of structural equation modeling*. New York: Guilford.

Kunda, Z. (1999). *Social cognition: Making sense of people*. Boston, MA: MIT Press.

Laird, R. D., Jordan, K. Y., Dodge, K. A., Pettit, G. S., & Bates, J. E. (2001). Peer rejection in childhood, involvement with antisocial peers in early adolescence, and the development of externalizing behavior problems. *Development and Psychopathology, 13*(2), 337-354.

Little, T. D., Jones, S. M., Henrich, C. C., & Hawley, P. H. (2003). Disentangling the "whys" from the "whats" of aggressive behaviour. *International Journal of Behavioral Development, 27*(2), 122-133.

Lynch, M., & Cicchetti, D. (1998). An ecological-transactional analysis of children and contexts: The longitudinal interplay among child maltreatment, community violence, and children's symptomatology. *Development and Psychopathology, 10*(2), 235-257.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7*(1), 83-104.

Margolin, G., & Gordis, A. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology, 51*, 445-479.

Nasby, W., Hayden, B., & DePaulo, B. M. (1980). Attributional bias among aggressive boys to interpret unambiguous social stimuli as displays of hostility. *Journal of Abnormal Psychology, 89*(3), 459-468.

New York State Education Department (2004, April 5). *The New York State report card.* Albany, NY: Information and Reporting Services. Retrieved June 27, 2004, from http://www.emsc.nysed.gov/irts/reportcard/home.html

Osofsky, J. D. (Ed.). (1997). *Children in a violent society.* New York, NY: Guilford Press.

Perry, B. D., Pollard, R. A., Blakley, T. L., Baker, W. L., & Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and "use-dependent" development of the brain: How "states" become "traits". *Infant Mental Health Journal, 16*(4), 271-291.

Phillips, C. (2003). Who's who in the pecking order?: Aggression and 'normal violence' in the lives of girls and boys. *The British Journal of Criminology, 43*, 710-728.

Pollak, S. D., Cicchetti, D., Hornung, K., & Reed, A. (2000). Recognizing emotion in faces: Developmental effects of child abuse and neglect. *Developmental Psychology, 36*(5), 679-688.

Richters, J. E., & Martinez, P. (1990). Things I Have Seen and Heard: A structured interview for assessing young children's violence exposure. Rockville, MD: National Institute of Mental Health.

Rieder, C., & Cicchetti, D. (1989). Organizational perspective on cognitive control functioning and cognitive-affective balance in maltreated children. *Developmental Psychology, 25*(3), 382-393.

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin, 27*(2), 151-161.

Rose, A. J., Swenson, L. P., & Waller, E. M. (2004). Overt and relational aggression and perceived popularity: Developmental differences in concurrent and prospective relations. *Developmental Psychology, 40*(3), 378-387.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Shahinfar, A., Kupersmidt, J. B., & Matza, L. S. (2001). The relation between exposure to violence and social information processing among incarcerated adolescents. *Journal of Abnormal Psychology, 110*(1), 136-141.

Schwartz, D., McFadyen-Ketchum, S. A., Dodge, K. A., Pettit, G. S., & Bates, J. E. (1998). Peer group victimization as a predictor of children's behavior problems at home and in school. *Development and Psychopathology, 10*(1), 87-99.

Tolan, P. H., Gorman-Smith, D., & Henry, D. B. (2003). The developmental ecology of urban males' youth violence. *Developmental Psychology, 39*(2), 274-291.

Underwood, M. K. (2003). *Social aggression among girls*. New York: Guilford.

White, K. S., Bruce, S. E., Farrell, A. D., & Kliewer, W. (1998). Impact of exposure to community violence on anxiety: A longitudinal study of family social support as a protective factor for urban children. *Journal of Child and Family Studies, 7*(2), 187-203.

Xie, H., Swift, D. J., Cairns, B. D., & Cairns, R. B. (2002). Aggressive behaviors in social interactions and developmental adaptation: A narrative analysis of interpersonal conflicts during early adolescence. *Social Development, 11*(2), 205-224.

Zelli, A., Dodge, K. A., Lochman, J. E., & Laird, R. D. (1999). The distinction between beliefs legitimizing aggression and deviant processing of social cues: Testing measurement validity and the hypothesis that biased processing mediates the effects of beliefs on aggression. *Journal of Personality and Social Psychology, 77*(1), 150-166.

APPENDIX A: QUESTIONNAIRE MATERIALS FOR PAPER TWO

Background Information

Gender: Female □ Male □

Current Age: _____

Racial/Ethnic Identity: _____

****

Directions:

- In this task, you are asked to think of an acquaintance here at school -- someone you know but are not particularly fond of. Write that person's **initials** in this space: _____.
- Read each of the following 4 brief stories, pretending that you and the person you listed above are the two people in these hypothetical situations.
- After reading each story, answer the set of questions below. There are no "right" or "wrong" answers to these questions.

---

1) You are getting ready to have lunch in the dining hall. You put your lunch and belongings down at a table and go to purchase a drink. When you return to your table, the person you listed above is holding your lunch bag.

Why do you think he/she is holding your bag?

_____

_____

What would you do?

_____

_____

2) You are getting ready to take a mid-term exam and you can't find your pencil. You know you brought one to class to use on the exam. As you are leaving the exam, you see the person you listed above has it in his/her hand.

Why do you think he/she has your pencil?

_____

_____

What would you do?

_____

_____

3) It is early spring and you are sitting with some friends on the quad. Suddenly, out of nowhere, you are hit hard in the back with a ball. You look up to see that it was the person you listed above who threw the ball.

Why do you think he/she did this?

_____

_____

What would you do?

_____

_____

4) You are having lunch in the dining hall and the person you listed above knocks over his/her drink spilling it all over your shirt.

Why do you think he/she did this?

_____

_____

What would you do?

_____

_____

Directions
Indicate how much you agree or disagree with each statement by placing a mark in the box under the appropriate term.

		Strongly Disagree	*Disagree*	*Agree*	*Strongly Agree*
1	On the whole, I am satisfied with myself.	SD	D	A	SA
2	At times I think I am no good at all.	SD	D	A	SA
3	I feel that I have a number of good qualities.	SD	D	A	SA
4	I am able to do things as well as most other people.	SD	D	A	SA
5	I feel I do not have much to be proud of.	SD	D	A	SA
6	I feel useless at times.	SD	D	A	SA
7	I feel that I'm a person of worth, at least on an equal plane with others.	SD	D	A	SA
8	I wish I could have more respect for myself.	SD	D	A	SA
9	All-in-all, I feel that I am a failure.	SD	D	A	SA
10	I take a positive attitude toward myself.	SD	D	A	SA
11	I have high self-esteem.	SD	D	A	SA

Directions
Indicate how much you were distressed by the following thoughts or feelings *within the last seven days*.

		Not At All	*A Little Bit*	*Moderately*	*Quite A Bit*	*Extremely*
1	Feeling lonely.	1	2	3	4	5
2	Feeling blue.	1	2	3	4	5
3	Feeling no interest in things.	1	2	3	4	5
4	Feelings of worthlessness.	1	2	3	4	5
5	Feeling hopeless about the future.	1	2	3	4	5
6	Thoughts of ending your life.	1	2	3	4	5
7	Nervousness or shakiness inside.	1	2	3	4	5
8	Suddenly scared for no reason.	1	2	3	4	5
9	Feeling tense or keyed-up.	1	2	3	4	5
10	Spells of terror or panic.	1	2	3	4	5
11	Feeling so restless you could not sit still.	1	2	3	4	5
12	Feeling fearful.	1	2	3	4	5

Feelings About Close Relationships

- The following statements describe different ways people sometimes feel about close relationships. As such, there are no "right" or "wrong" answers.
- First, think of special people with whom you currently have, or previously had, close relationships with that are/were especially important to you (e.g., romantic partners, parents, best friends, siblings).
- Now, rate each statement according to your *usual* or *typical* feelings about these people. If you are describing past relationships, try to recall as vividly as possible how you felt about these people at the time.

		Not at all like me	*Unlike me*	*Somewhat unlike me/Somewhat like me*	*Like me*	*Very much like me*
1	I find it difficult to depend on other people.	1	2	3	4	5
2	It is very important to me to feel independent.	1	2	3	4	5
3	I find it easy to get emotionally close to others.	1	2	3	4	5
4	I worry that I will be hurt if I allow myself to become too close to others.	1	2	3	4	5
5	I am comfortable without close emotional relationships.	1	2	3	4	5
6	I want to be completely emotionally intimate with others.	1	2	3	4	5
7	I worry about being alone.	1	2	3	4	5
8	I am comfortable depending on other people.	1	2	3	4	5
9	I find it difficult to trust others completely.	1	2	3	4	5
10	I am comfortable having other people depend on me.	1	2	3	4	5
11	I worry that others don't value me as much as I value them.	1	2	3	4	5
12	It is very important to me to feel self-sufficient.	1	2	3	4	5
13	I prefer not to have other people depend on me.	1	2	3	4	5
14	I am uncomfortable being close to others.	1	2	3	4	5
15	I find that others are reluctant to get as close as I would like.	1	2	3	4	5
16	I prefer not to depend on others.	1	2	3	4	5
17	I worry about not being accepted by others.	1	2	3	4	5

Directions

In each of the following pairs of attitudes, choose the one that you **most agree** with. Mark your answer by placing an X next to the phrase which best describes you. Only mark **one answer** for each sentence pair.

	A		*B*	
1		I am good at getting people to do things my way.		I am not good at getting people to do things my way.
2		I like it when others brag about good thing I have done.		I don't like it when others brag about my accomplishments.
3		I would do almost anything if you dared me.		I am a pretty careful person.
4		When people say good things about me, sometimes I get embarrassed.		I know that I am good because everybody keeps telling me so.
5		The thought of me ruling the world scares me.		If I ruled the world, it would be a better place.
6		I can usually talk my way out of trouble.		I usually accept the consequences of my behavior.
7		I prefer to be just like other people.		I like to be the center of attention.
8		I will do really well in life.		Doing well in life is not really important to me.
9		I am no better or worse than most people are.		I think I am a special person.
10		I am not sure that I would make a good leader.		I think that I am a good leader.
11		I'm not shy about asking for what I want.		I wish I were not such a shy person when it comes to asking for what I want.
12		I like being in charge of other people.		I don't mind following others.
13		It is easy for me to control other people.		I don't feel comfortable being in control other people.
14		It is really important that others show me the respect I deserve.		I usually get the respect that I deserve.
15		I don't really like to show off my body.		I like to show off my body.
16		I can read people really well.		People are sometimes hard to understand.
17		If I know what I am doing, then I am willing to making choices or decisions.		I like to make choices or decisions no matter what the situation.
18		I just want to be pretty happy.		I want others to think I am special and great.
19		My body is nothing special or great.		I like to look at my body.
20		I try not to show off.		I will show off if I get the chance.

Continued

	A		*B*	
21		I always know what I am doing.		Sometimes I am not sure what I am doing.
22		I sometimes get other people to help me when I do things.		I almost always do things on my own.
23		Sometimes I tell good jokes or stories.		Everybody always likes to hear my jokes or stories.
24		I expect a lot from other people.		I like doing good things for other people.
25		I don't think I get as much as I should in life.		I am usually satisfied with what I get in life.
26		It embarrasses me when people tell me good things about myself.		I like it when people tell me I look good or I have done a good job.
27		I like to be in control of things.		I don't really care about being the person in control.
28		I don't care much about wearing clothes that are in style.		I like to start new fads or styles in clothes.
29		I like to look at myself in the mirror a lot.		I don't really care to look at myself in the mirror too often.
30		I really like to be the center of attention.		It makes me feel uncomfortable to be the center of attention.
31		I can live my life any way I want to.		People can't always live their lives the way they want.
32		Being in charge doesn't mean much to me.		People always seem to realize that I am in charge.
33		When I am in a group, I like to be the leader.		I don't care if I am the leader or not.
34		I am going to be a great person.		I hope I am going to be successful.
35		People only sometimes believe what I tell them.		I can make people believe anything I want them to.
36		I was born a good leader.		It takes a long time to learn to be a good leader.
37		I wish someone would someday write a story about my life.		I don't like people getting into my business for any reason.
38		I get upset when people don't notice how I look when I go out.		I don't mind if people don't notice me.
39		Things come easier to me than to other people.		There is a lot I can learn from other people.
40		I am just as good as everybody else.		I am a really great person.

Directions
Of these item pairs, which is more typical of the **students at Cornell**? For each item pair, place an **X** in the box beside the term to indicate which term best describes students.

	A		B	
1		Loud		Quiet
2		Friendly		Mean
3		Obey the professors		Don't obey the professors
4		Help me with homework		Don't help me with homework
5		Do things I like to do		Do stupid things
6		Argue a lot		Get along well
7		Hate me		Like me
8		Pick fights with me		Get along with me
9		Cool		Jerks

Directions
Of these item pairs, which is (was) more typical of **your parent(s)** (or the people who raised you)? For each item pair, place an **X** in the box beside the term to indicate which term best describes your parent(s).

	A		B	
1		Young		Old
2		Punishing		Forgiving
3		Quiet		Out of control
4		Understanding		Self-centered
5		Strict		Loose
6		Lots of rules		Few rules
7		Cool		Out of date
8		Loving		Mean
9		Harsh		Gentle

Directions
Of these item pairs, which is more typical of **your professors** (or course instructors)? For each item pair, place an **X** in the box beside the term to indicate which term best describes your professors.

	A		B	
1		Old		Young
2		Rigid		Fair
3		Smart		Stupid
4		Good teachers		Bad teachers
5		Punishing		Forgiving
6		Self-centered		Helping students
7		Approachable		Unreachable
8		Weird		Cool
9		Mean		Friendly

Directions
Circle the number in the box to indicate how accurately each statement describes you.

		Not at all like me	Very unlike me	Somewhat unlike me	Somewhat unlike me/Somewhat like me	Somewhat like me	A lot like me	Very much like me
1	Once in a while I can't control the urge to strike another person.	1	2	3	4	5	6	7
2	I plan tasks carefully.	1	2	3	4	5	6	7
3	Given enough provocation, I may hit another person.	1	2	3	4	5	6	7
4	I do things without thinking.	1	2	3	4	5	6	7
5	If somebody hits me, I hit back.	1	2	3	4	5	6	7
6	I make up my mind quickly.	1	2	3	4	5	6	7
7	I get into fights a little more than the average person.	1	2	3	4	5	6	7
8	I am happy-go-lucky.	1	2	3	4	5	6	7
9	If I have to resort to violence to protect my rights, I will.	1	2	3	4	5	6	7
10	I don't pay attention to things.	1	2	3	4	5	6	7
11	There are people who pushed me so far that we came to blows.	1	2	3	4	5	6	7
12	I have "racing" thoughts.	1	2	3	4	5	6	7
13	I have threatened people I know.	1	2	3	4	5	6	7
14	I plan trips well ahead of time.	1	2	3	4	5	6	7
15	I have become so mad that I have broken things.	1	2	3	4	5	6	7
16	I am self-controlled.	1	2	3	4	5	6	7
17	I flare up quickly but get over it quickly.	1	2	3	4	5	6	7
18	I concentrate easily.	1	2	3	4	5	6	7
19	When frustrated, I let my irritation show.	1	2	3	4	5	6	7
20	I save money regularly.	1	2	3	4	5	6	7
21	I sometimes feel like a powder keg ready to explode.	1	2	3	4	5	6	7
22	I "squirm" in my seat during movies or lectures.	1	2	3	4	5	6	7
23	Some of my friends think I'm a hothead.	1	2	3	4	5	6	7
24	I am a careful thinker.	1	2	3	4	5	6	7
25	Sometimes I fly off the handle for no good reason.	1	2	3	4	5	6	7
26	I plan for job security.	1	2	3	4	5	6	7

		Not at all like me	Very unlike me	Somewhat unlike me	Somewhat unlike me/Somewhat like me	Somewhat like me	A lot like me	Very much like me
27	I have trouble controlling my temper.	1	2	3	4	5	6	7
28	I say things without thinking.	1	2	3	4	5	6	7
29	I often find myself disagreeing with people.	1	2	3	4	5	6	7
30	I like to think about complex problems.	1	2	3	4	5	6	7
31	When people annoy me, I may tell them what I think of them.	1	2	3	4	5	6	7
32	I like to change jobs.	1	2	3	4	5	6	7
33	I can't help getting into arguments when people disagree with me.	1	2	3	4	5	6	7
34	I act on "impulse".	1	2	3	4	5	6	7
35	My friends say that I'm somewhat argumentative.	1	2	3	4	5	6	7
36	I get easily bored when solving thought problems.	1	2	3	4	5	6	7
37	I am sometimes eaten-up with jealousy.	1	2	3	4	5	6	7
38	I act on the spur of the moment.	1	2	3	4	5	6	7
39	At times I feel I have gotten a raw deal out of life.	1	2	3	4	5	6	7
40	I am a steady thinker.	1	2	3	4	5	6	7
41	Other people always seem to get the breaks in life.	1	2	3	4	5	6	7
42	I like to change residences.	1	2	3	4	5	6	7
43	I wonder why sometimes I feel so bitter about things.	1	2	3	4	5	6	7
44	I buy things on impulse.	1	2	3	4	5	6	7
45	I know that my "friends" talk about me behind my back.	1	2	3	4	5	6	7
46	I can only think about one problem at a time.	1	2	3	4	5	6	7
47	I am suspicious of overly friendly strangers.	1	2	3	4	5	6	7
48	I change hobbies.	1	2	3	4	5	6	7
49	It's OK for me to hit someone if he or she hits me first.	1	2	3	4	5	6	7
50	I spend or charge more money than I earn.	1	2	3	4	5	6	7

		Not at all like me	Very unlike me	Somewhat unlike me	Somewhat unlike me/Somewhat like me	Somewhat like me	A lot like me	Very much like me
51	When people are especially nice, I wonder what they want.	1	2	3	4	5	6	7
52	My mind wanders when I am working on complicated tasks.	1	2	3	4	5	6	7
53	I can think of no good reason for ever hitting a person.	1	2	3	4	5	6	7
54	If I walk away from a fight, everyone will think I am a coward.	1	2	3	4	5	6	7
55	I tell my friends openly when I disagree with them.	1	2	3	4	5	6	7
56	It is OK to yell at someone if he or she looks at me in a bad way.	1	2	3	4	5	6	7
57	I am an even-tempered person.	1	2	3	4	5	6	7
58	I like putting puzzles together.	1	2	3	4	5	6	7
59	If people do something to make me really mad, they deserve to be beaten-up.	1	2	3	4	5	6	7
60	I am future-oriented.	1	2	3	4	5	6	7
61	I sometimes feel that people are laughing at me behind my back.	1	2	3	4	5	6	7
62	I am more interested in the present than the future.	1	2	3	4	5	6	7
63	It is OK for me to hit someone if they start a fight on my turf (i.e., home, neighborhood, school).	1	2	3	4	5	6	7
64	I am restless at the movies or lectures.	1	2	3	4	5	6	7
65	If I do not fight back when other people push me around, I will lose respect.	1	2	3	4	5	6	7
66	It makes me sad to see a lonely stranger in a group.	1	2	3	4	5	6	7
67	People make too much of the feelings and sensitivity of animals.	1	2	3	4	5	6	7
68	I often find public displays of affection annoying.	1	2	3	4	5	6	7
69	I am annoyed by unhappy people who just feel sorry for themselves.	1	2	3	4	5	6	7
70	I become nervous if others around me seem to be nervous.	1	2	3	4	5	6	7

		Not at all like me	Very unlike me	Somewhat unlike me	Somewhat unlike me/Somewhat like me	Somewhat like me	A lot like me	Very much like me
71	I find it silly for people to cry out of happiness.	1	2	3	4	5	6	7
72	I tend to get emotionally involved with a friend's problems.	1	2	3	4	5	6	7
73	I am able to make decisions without being influenced by people's feelings.	1	2	3	4	5	6	7
74	When a friend starts to talk about his/her problems, I try to steer the conversation to something else.	1	2	3	4	5	6	7
75	The people around me have a great influence on my moods.	1	2	3	4	5	6	7
76	I am very upset when I see an animal in pain.	1	2	3	4	5	6	7
77	I cannot continue to feel OK if people around me are depressed.	1	2	3	4	5	6	7
78	I don't get upset just because a friend is acting upset.	1	2	3	4	5	6	7
79	I like to watch people open presents.	1	2	3	4	5	6	7
80	I think lonely people are probably unfriendly.	1	2	3	4	5	6	7
81	Seeing people cry upsets me.	1	2	3	4	5	6	7
82	Some songs make me happy.	1	2	3	4	5	6	7
83	It is hard for me to see how some things upset people so much.	1	2	3	4	5	6	7
84	I get very upset when I see someone being treated badly.	1	2	3	4	5	6	7
85	I am able to remain calm even when people around me worry.	1	2	3	4	5	6	7

APPENDIX B: QUESTIONNAIRE MATERIALS FOR PAPER THREE

Directions:

- Think of a student at your school -- someone you know *but don't like very much.*
- Write that person's **initials** in this space: _____.

How do you feel about this person?

☐ Strongly dislike ☐ Dislike ☐ Neither like nor dislike ☐ Like a little bit ☐ Like a lot

- Pretend that you and the person you listed above are the two people in the following situations.
- After reading each story, answer the set of questions below. Remember, there are no "right" or "wrong" answers to these questions.

---

1) You are getting ready to have lunch in the cafeteria at your school. You put your lunch and personal belongings down at a table and go to buy a drink. When you return to your table, the person you listed above is holding your bag.

Why do you think he/she is holding your bag?

_____

_____

What would you do?

_____

_____

How *angry* would you be if this happened to you?

☐ Not at all ☐ A little bit ☐ Moderately ☐ Very ☐ Extremely

How much would this *hurt your feelings*?

☐ Not at all ☐ A little bit ☐ Moderately ☐ Very ☐ Extremely

2) You are getting ready to take a math test and you can't find your pencil. You know you brought one to class to use on the test. As you are leaving the test, you see that the person you listed above has it in his/her hand.

Why do you think he/she has your pencil?

_____

_____

What would you do?

_____

_____

How *angry* would you be if this happened to you?

☐ Not at all ☐ A little bit ☐ Moderately ☐ Very ☐ Extremely

How much would this *hurt your feelings*?

☐ Not at all ☐ A little bit ☐ Moderately ☐ Very ☐ Extremely

3) It is early spring and you are sitting outside on the grass with some friends at your school. Suddenly, out of nowhere, you are hit hard in the back with a ball. You look up to see that it was the person you listed above who threw the ball.

Why do you think he/she did this?

_____

_____

What would you do?

_____

_____

How *angry* would you be if this happened to you?

☐ Not at all ☐ A little bit ☐ Moderately ☐ Very ☐ Extremely

How much would this *hurt your feelings*?

☐ Not at all ☐ A little bit ☐ Moderately ☐ Very ☐ Extremely

4) You are having lunch in the cafeteria and the person you listed above knocks over his/her drink spilling it all over your shirt.

Why do you think he/she did this?

_____

_____

What would you do?

_____

_____

How *angry* would you be if this happened to you?

☐ Not at all ☐ A little bit ☐ Moderately ☐ Very ☐ Extremely

How much would this *hurt your feelings*?

☐ Not at all ☐ A little bit ☐ Moderately ☐ Very ☐ Extremely

Directions
Circle the number in the box to indicate ***how much you agree*** with each statement.

		Strongly Disagree	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
1	Overall, I am satisfied with myself.	1	2	3	4	5
2	At times I think I am no good at all.	1	2	3	4	5
3	I feel that I have a number of good qualities.	1	2	3	4	5
4	I feel I don't have much to be proud of.	1	2	3	4	5
5	I take a positive attitude toward myself.	1	2	3	4	5
6	I have high self-esteem.	1	2	3	4	5
7	People like me don't have much of a chance in life.	1	2	3	4	5
8	I don't have much control over whether I get into trouble or not.	1	2	3	4	5
9	I feel like I belong at this school.	1	2	3	4	5
10	The teachers here respect me.	1	2	3	4	5
11	I try hard in school.	1	2	3	4	5
12	In general, I like school.	1	2	3	4	5
13	I feel safe at my school.	1	2	3	4	5
14	I feel safe in my neighborhood.	1	2	3	4	5
15	I feel safe in my house.	1	2	3	4	5

Directions
Indicate how much you were distressed by the following thoughts or feelings ***within the last seven days***.

		Not At All	*A Little Bit*	*Moderately*	*Quite A Bit*	*Extremely*
1	Feeling lonely.	1	2	3	4	5
2	Feeling blue.	1	2	3	4	5
3	Feeling no interest in things.	1	2	3	4	5
4	Feeling worthless.	1	2	3	4	5
5	Feeling hopeless about the future.	1	2	3	4	5
6	Feeling nervous or shaky inside.	1	2	3	4	5
7	Suddenly scared for no reason.	1	2	3	4	5
8	Feeling tense or keyed-up.	1	2	3	4	5
9	Spells of terror or panic.	1	2	3	4	5
10	Feeling so restless you could not sit still.	1	2	3	4	5
11	Feeling fearful.	1	2	3	4	5

Directions

- Think of people that you have had relationships with that were (or still are) very important to you (like a relationship with a boyfriend/girlfriend or best friend).

- Circle the number in the box to indicate your ***usual* or *typical*** feelings about these people. If you are describing past relationships, try to remember how you felt about these people at the time. Remember, there are no "right" or "wrong" answers.

		Not at all like me	*Unlike me*	*Somewhat unlike me/ Somewhat like me*	*Like me*	*Very much like me*
1	I find it difficult to depend on other people.	1	2	3	4	5
2	It is very important to me to feel independent.	1	2	3	4	5
3	I find it easy to get close to others.	1	2	3	4	5
4	I worry that I will be hurt if I allow myself to become too close to others.	1	2	3	4	5
5	I am comfortable without close relationships.	1	2	3	4	5
6	I want to be completely emotionally intimate with people I am close to.	1	2	3	4	5
7	I worry about being alone.	1	2	3	4	5
8	I am comfortable depending on other people.	1	2	3	4	5
9	I find it difficult to trust others completely.	1	2	3	4	5
10	I am comfortable having other people depend on me.	1	2	3	4	5
11	I worry that others don't value me as much as I value them.	1	2	3	4	5
12	It is very important to me to feel self-sufficient.	1	2	3	4	5
13	I prefer not to have other people depend on me.	1	2	3	4	5
14	I am uncomfortable being close to others.	1	2	3	4	5
15	I find that others don't want to get as close as I would like.	1	2	3	4	5
16	I prefer not to depend on others.	1	2	3	4	5
17	I worry about not being accepted by others.	1	2	3	4	5

Directions
Circle the number in the box to indicate how **often** each statement is true for you.

		Never True	Almost Never True	Rarely True	Sometimes True	Often True	Almost Always True	Always True
1	My parents respect my feelings.	1	2	3	4	5	6	7
2	My parents accept me as I am.	1	2	3	4	5	6	7
3	My parents sense when I'm upset about something.	1	2	3	4	5	6	7
4	I get upset a lot more than my parents know about.	1	2	3	4	5	6	7
5	My parents trust my judgment.	1	2	3	4	5	6	7
6	I tell my parents about my problems and troubles.	1	2	3	4	5	6	7
7	My parents encourage me to talk about my problems.	1	2	3	4	5	6	7
8	My parents don't understand what I'm going through these days.	1	2	3	4	5	6	7
9	I can count on my parents when I need to get something off my chest.	1	2	3	4	5	6	7
10	I feel that no one understands me.	1	2	3	4	5	6	7
11	Talking over my problems with my friends makes me feel ashamed or foolish.	1	2	3	4	5	6	7
12	My friends encourage me to talk about my difficulties.	1	2	3	4	5	6	7
13	My friends don't understand what I am going through these days.	1	2	3	4	5	6	7
14	My friends listen to what I have to say.	1	2	3	4	5	6	7
15	I feel my friends are good friends.	1	2	3	4	5	6	7
16	I trust my friends.	1	2	3	4	5	6	7
17	My friends respect my feelings.	1	2	3	4	5	6	7
18	It seems as if my friends are irritated with me for no reason.	1	2	3	4	5	6	7
19	I tell my friends about my problems and troubles.	1	2	3	4	5	6	7
20	If my friends know something is bothering me, they ask me about it.	1	2	3	4	5	6	7

Directions

In each of the following pairs of attitudes, choose the one that you **most agree** with. Mark your answer by placing an X next to the phrase which best describes you. Only mark **one answer** for each sentence pair.

	A		*B*	
1		I like it when others brag about good thing I have done.		I don't like it when others brag about me.
2		I would do almost anything if you dared me.		I am a pretty careful person.
3		The thought of me ruling the world scares the hell out of me.		If I ruled the world it would be a better place.
4		I can usually talk my way out of trouble.		I usually accept punishment for my behaviors.
5		I prefer to just be "just one of the guys."		I like to be the center of attention.
6		I find it easy to manipulate people.		I don't like it when I find myself manipulating people.
7		I insist that others show me the respect I deserve.		I usually get the respect that I deserve.
8		I can read people really well.		People are sometimes hard to understand.
9		I just want to be pretty happy.		I want others to think I am special and great.
10		I try not to show off.		I will show off if I get the chance.
11		Sometimes I tell good jokes or stories.		Everybody always likes to hear my jokes or stories.
12		I expect a lot from other people.		I like doing good things for other people.
13		I don't think I get as much as I should in life.		I am usually satisfied with what I get in life.
14		I like to be in control of things.		I don't really care about being the person in control.
15		I don't care much about wearing clothes that are in style.		I like to start new fads or styles in clothes.
16		I really like to be the center of attention.		It makes me feel uncomfortable to be the center of attention.
17		People only sometimes believe what I tell them.		I can make people believe anything I want them to.
18		I get upset when people don't notice how I look when I go out.		I don't mind if people don't notice me.

Directions
Of these item pairs, which is more typical of the **students at your school**? For each item pair, place an **X** in the box beside the term to indicate which term best describes students at your school.

	A		B	
1		Loud		Quiet
2		Friendly		Mean
3		Obey the teachers		Don't obey the teachers
4		Help me with homework		Don't help me with homework
5		Do things I like to do		Do stupid things
6		Argue a lot		Get along well
7		Hate me		Like me
8		Pick fights with me		Get along with me
9		Cool		Jerks

Directions
Of these item pairs, which is more typical of **your parent(s)/primary caregiver(s)**? For each item pair, place an **X** in the box beside the term to indicate which term best describes your parents/primary caregiver(s).

	A		B	
1		Young		Old
2		Punishing		Forgiving
3		Quiet		Out of control
4		Understanding		Self-centered
5		Strict		Loose
6		Lots of rules		Few rules
7		Cool		Out of date
8		Loving		Mean
9		Harsh		Gentle

Directions
Of these item pairs, which is more typical of **the teachers at your school**? For each item pair, place an **X** in the box beside the term to indicate which term best describes your teachers.

	A		B	
1		Old		Young
2		Rigid		Fair
3		Smart		Stupid
4		Good teachers		Bad teachers
5		Punishing		Forgiving
6		Self-centered		Helping students
7		Approachable		Unreachable
8		Weird		Cool
9		Mean		Friendly

Directions

Circle the number in the box to indicate how accurately each statement describes you.

		Not at all like me	Very unlike me	Somewhat unlike me	Somewhat unlike me/ Somewhat like me	Somewhat like me	A lot like me	Very much like me
1	Once in a while I can't control the urge to strike another person.	1	2	3	4	5	6	7
2	I plan tasks carefully.	1	2	3	4	5	6	7
3	Given enough provocation, I may hit another person.	1	2	3	4	5	6	7
4	I do things without thinking.	1	2	3	4	5	6	7
5	If somebody hits me, I hit them back.	1	2	3	4	5	6	7
6	I get into fights a little more than the average person.	1	2	3	4	5	6	7
7	If I have to resort to violence to protect my rights, I will.	1	2	3	4	5	6	7
8	I don't pay attention to things.	1	2	3	4	5	6	7
9	There are people who pushed me so far that we got into a fight.	1	2	3	4	5	6	7
10	I have threatened people I know.	1	2	3	4	5	6	7
11	I plan trips well ahead of time.	1	2	3	4	5	6	7
12	I have become so mad that I have broken things.	1	2	3	4	5	6	7
13	I get mad quickly but get over it quickly.	1	2	3	4	5	6	7
14	When frustrated, I let my irritation show.	1	2	3	4	5	6	7
15	I sometimes feel like I am ready to explode with anger.	1	2	3	4	5	6	7
16	Some of my friends think I'm a hothead.	1	2	3	4	5	6	7
17	I am a careful thinker.	1	2	3	4	5	6	7
18	Sometimes I fly off the handle for no good reason.	1	2	3	4	5	6	7
19	I have trouble controlling my temper.	1	2	3	4	5	6	7
20	I say things without thinking.	1	2	3	4	5	6	7
21	I often find myself disagreeing with people.	1	2	3	4	5	6	7
22	When people annoy me, I may tell them what I think of them.	1	2	3	4	5	6	7
23	I can't help getting into arguments when people disagree with me.	1	2	3	4	5	6	7
24	I act on "impulse".	1	2	3	4	5	6	7

		Not at all like me	Very unlike me	Somewhat unlike me	Somewhat unlike me/ Somewhat like me	Somewhat like me	A lot like me	Very much like me
25	My friends say that I'm somewhat argumentative.	1	2	3	4	5	6	7
26	I get easily bored when solving thought problems.	1	2	3	4	5	6	7
27	I am sometimes eaten-up with jealousy.	1	2	3	4	5	6	7
28	I act on the spur of the moment.	1	2	3	4	5	6	7
29	At times I feel I have gotten a bad deal out of life.	1	2	3	4	5	6	7
30	I am suspicious of overly friendly strangers.	1	2	3	4	5	6	7
31	I wonder why sometimes I feel so bitter about things.	1	2	3	4	5	6	7
32	I know that my "friends" talk about me behind my back.	1	2	3	4	5	6	7
33	I can only think about one problem at a time.	1	2	3	4	5	6	7
34	Other people always seem to get the breaks in life.	1	2	3	4	5	6	7
35	It's OK for me to hit someone if he or she hits me first.	1	2	3	4	5	6	7
36	When people are especially nice, I wonder what they want.	1	2	3	4	5	6	7
37	I can think of no good reason for ever hitting a person.	1	2	3	4	5	6	7
38	If I walk away from a fight, everyone will think I am a coward.	1	2	3	4	5	6	7
39	I tell my friends openly when I disagree with them.	1	2	3	4	5	6	7
40	It is OK to yell at someone if he or she looks at me in a bad way.	1	2	3	4	5	6	7
41	I am an even-tempered person.	1	2	3	4	5	6	7
42	If people do something to make me really mad, they deserve to be beaten-up.	1	2	3	4	5	6	7
43	I sometimes feel that people are laughing at me behind my back.	1	2	3	4	5	6	7
44	I am more interested in the present than the future.	1	2	3	4	5	6	7
45	It is OK for me to hit someone if they start a fight on my turf, like in my home, neighborhood or school.	1	2	3	4	5	6	7

		Not at all like me	Very unlike me	Somewhat unlike me	Somewhat unlike me/ Somewhat like me	Somewhat like me	A lot like me	Very much like me
46	I am restless at the movies or during class.	1	2	3	4	5	6	7
47	If I do not fight back when other people push me around, I will lose respect.	1	2	3	4	5	6	7
48	It makes me sad to see a lonely stranger in a group.	1	2	3	4	5	6	7
49	I tend to get emotionally involved with a friend's problems.	1	2	3	4	5	6	7
50	I get very upset when I see someone being treated badly.	1	2	3	4	5	6	7
51	I am very upset when I see an animal in pain.	1	2	3	4	5	6	7
52	Seeing people cry upsets me.	1	2	3	4	5	6	7
53	I like to watch people open gifts.	1	2	3	4	5	6	7
54	If others have hurt me, I try to keep them from being in my group of friends.	1	2	3	4	5	6	7
55	When I am upset with others, I ignore them or stop talking to them.	1	2	3	4	5	6	7
56	When I am mad at someone, I often gossip or spread rumors about them.	1	2	3	4	5	6	7
57	When someone hurts or upsets me, I often tell my friends to stop liking that person.	1	2	3	4	5	6	7

Directions

Below is a list of different feelings and emotions. For each word, circle the number to indicate how much you have felt that way during ***the past few weeks***.

		Not at All	A Little	Moderately	A Lot	Extremely
1	Enthusiastic	1	2	3	4	5
2	Afraid	1	2	3	4	5
3	Excited	1	2	3	4	5
4	Nervous	1	2	3	4	5
5	Alert	1	2	3	4	5
6	Guilty	1	2	3	4	5
7	Upset	1	2	3	4	5

Directions

The following four statements represent four common patterns of feelings about relationships. Please rate how much each statement describes the way *you typically* feel in a relationship with a ***romantic partner or close friend.***

---

1) It is easy for me to get emotionally close to other people. I am comfortable depending on others and having them depend on me. I don't worry about being alone or having others not accept me.

☐	☐	☐	☐	☐	☐	☐
Strongly Disagree	Disagree moderately	Disagree slightly	Neutral	Agree slightly	Agree moderately	Agree strongly

2) I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

☐	☐	☐	☐	☐	☐	☐
Strongly Disagree	Disagree moderately	Disagree slightly	Neutral	Agree slightly	Agree moderately	Agree strongly

3) I want to be completely emotionally intimate with others, but I often find that others don't want to get as close as I would like. I am uncomfortable when I don't have close relationships. I sometimes worry that others don't care about me as much as I care about them.

☐	☐	☐	☐	☐	☐	☐
Strongly Disagree	Disagree moderately	Disagree slightly	Neutral	Agree slightly	Agree moderately	Agree strongly

4) I am <u>uncomfortable</u> getting close to others. I want close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

☐	☐	☐	☐	☐	☐	☐
Strongly Disagree	Disagree moderately	Disagree slightly	Neutral	Agree slightly	Agree moderately	Agree strongly

<u>Which one of the above statements does the best job describing how you typically feel in relationships? (check one)</u>

☐ 1 ☐ 2 ☐ 3 ☐ 4

Directions

Please place a mark under the appropriate term to show *how often you have **seen** or **heard*** certain things around you in your home, neighborhood, or school (but not on TV or in movies).

		Never	*Once or Twice*	*A Few Times*	*Many Times*
1	I have seen somebody being arrested by the police.	A	B	C	D
2	I have seen drug deals.	A	B	C	D
3	I have seen someone being beaten-up.	A	B	C	D
4	I have heard guns being shot.	A	B	C	D
5	My house has been broken into.	A	B	C	D
6	I have seen somebody get stabbed.	A	B	C	D
7	I have seen somebody get shot or shot at.	A	B	C	D
8	I have seen gangs in my neighborhood.	A	B	C	D
9	I have seen somebody pull a gun on another person.	A	B	C	D
10	I have seen somebody pull a knife on another person.	A	B	C	D

Background Information

Current Age: _____

Racial/Ethnic Identity:

☐ African American (Black) ☐ Asian ☐ Hispanic/Latino ☐ White/Caucasian

☐ Other (please specify) _____

Gender: ☐ Female ☐ Male

Have you ever lived in foster care? ☐Yes ☐ No

Have you ever been arrested by the police? ☐Yes ☐ No

Teacher Survey

Researchers at Cornell University are studying how adolescents make decisions and resolve problems. To learn more about the way adolescents solve problems, we are asking teachers to answer some questions about their students' behaviors. All the information you provide will be kept secure and confidential. Neither the youth nor the school will have access to your answers.

****

1) What is <u>your</u> gender?

☐ Female ☐ Male

2) What is your relationship to this student? Please mark the box next to the term(s) to indicate your relationship.

☐ Math Teacher ☐ English Teacher ☐ Other _____
(please specify)

3) How <u>long</u> have you known this student? _____
(Please specify in months or years)

Please continue on the back...

Directions

Place a mark in the column to indicate how true each statement is of this adolescent, within the past 6 months.

		Not at all like him/her	Very unlike him/her	Somewhat unlike him/her	Somewhat unlike him/her somewhat like him/her	Somewhat like him/her	A lot like him/her	Very much like him/her
1	Argues	1	2	3	4	5	6	7
2	Is mean or bullies others	1	2	3	4	5	6	7
3	Demands a lot of attention	1	2	3	4	5	6	7
4	Destroys property (either his/her own or other people's)	1	2	3	4	5	6	7
5	Is disobedient, talks back, or sasses	1	2	3	4	5	6	7
6	Gets into fights	1	2	3	4	5	6	7
7	Uses physical force on others	1	2	3	4	5	6	7
8	Threatens people	1	2	3	4	5	6	7
9	Is stubborn, sullen, or irritable	1	2	3	4	5	6	7
10	Has sudden changes in mood, feelings, or behavior	1	2	3	4	5	6	7
11	Has temper tantrums or a hot temper	1	2	3	4	5	6	7
12	Teases others	1	2	3	4	5	6	7
13	Sulks	1	2	3	4	5	6	7
14	Steals things	1	2	3	4	5	6	7
15	Copes well with failure	1	2	3	4	5	6	7
16	Thinks before acting	1	2	3	4	5	6	7
17	Can accept it when things are not going her/his way	1	2	3	4	5	6	7
18	Can calm down when excited or all wound up	1	2	3	4	5	6	7
19	Has a lot of friends	1	2	3	4	5	6	7
20	Gets his/her feelings hurt easily	1	2	3	4	5	6	7
21	Is disliked, teased, or rejected by other students	1	2	3	4	5	6	7
22	Tries to keep others from being in her/his group of friends	1	2	3	4	5	6	7
23	When upset with others, this student ignores them or stops talking to them	1	2	3	4	5	6	7
24	Gossips or spreads rumors about others	1	2	3	4	5	6	7
25	When someone hurts or upsets her/him, this student tells friends to stop liking that person	1	2	3	4	5	6	7

SOCIAL-COGNITIVE MEDIATORS OF THE LINK BETWEEN SOCIAL-ENVIRONMENTAL RISK FACTORS AND AGGRESSION IN ADOLESCENCE

A Dissertation

Presented to the Faculty of the Graduate School

of Cornell University

in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

by

Catherine Pilcher Bradshaw

August 2004

TRANSMITTAL FOR FINAL REPORTS AND OTHER GRANT PRODUCTS

National Criminal Justice Reference Service
National Institute of Justice
Office of Research and Evaluation
810 Seventh Street, NW
Washington, DC 20531

FILE

DATE: 10/15/04

GRANT NUMBER 2003-IJ-CX-1016

FROM: Shelly Jackson **Project Monitor**