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Structure of Aggression among Urban Youth: Competing Factor Models of Subtypes of Physical and Relational Aggression

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Structure of Aggression Among Urban Youth:
Competing Factor Models of Subtypes of Physical and Relational Aggression

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

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Acknowledgments

Table of Contents

List of Tables

List of Figures

Abstract

STRUCTURE OF AGGRESSION AMONG URBAN YOUTH: COMPETING
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by Sarah W. Helms, B.A.

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Aggression has been demonstrated to pose a serious threat to the adaptive

development of youth, with decades of research demonstrating the negative associations

between aggression and other problem behaviors, both concurrently and predictively.

However, despite this body of research, the current psychological literature continues to

suffer from a lack of an overarching organizational framework from which to structure

the construct(s) of aggression. Furthermore, existing discrepancies across the literature,

particularly in the definitions of and outcomes associated with non-physical forms of

aggression (e.g., relational aggression, social aggression), exacerbate the complexities

facing prevention and intervention specialists. Insofar as research can isolate the unique

subtypes of aggressive behaviors that best predict maladjustment outcomes, researchers

can focus resources and efforts on those subtypes of aggression identified as being

particularly relevant for prevention efforts. To this end, the purpose of the current study

was to develop a measure that encompassed the structure of physical and relational

aggression and to test competing structures of aggression based on the hypothesized

relevant dimensions of mechanism of action (i.e., confrontational action vs. non-confrontational action) and vehicle of harm (i.e., physical harm vs. relational/social harm) using confirmatory factor analyses. Additionally, this study examined relations between aggression subtypes and hypothesized correlates, including peer deviancy, delinquency, drug use, and social intelligence. Further, this study assessed both the factor structures and unique relations among aggression and its correlates separately for boys and girls, and identified unique structure and relations by gender. Participants included an urban, predominantly African American sample of 280 youth ages eleven through seventeen, who were sampled from an ongoing longitudinal study of violence, substance use, stress, and coping. As hypothesized, the mechanism of action and vehicle of harm dimensions did represent relevant conceptual distinctions in the structure of aggression. Although models did not reach objective standards for goodness of fit criteria, comparatively, the mechanism of action model best represented the structure of aggression for boys, whereas the vehicle of harm model best represented the structure of aggression for girls. Both boys and girls had significant positive correlations among their respective subtypes of aggression and other indicators of maladjustment, including peer deviancy, delinquency, and drug use. Overall, these findings confirm that structures of aggression tested were problematic for urban African-American youth, and suggest that further attention should be paid to disentangling those aspects of aggression that might be most relevant for addressing prevention and intervention efforts.

Introduction

Aggression among youth is a serious public health concern, with detrimental consequences at both the individual and societal level. Childhood aggression exacerbated by high-risk social environments may contribute to a persistent pattern of difficulties and place individuals at elevated risk for mental health problems, substance dependence, financial and work-related problems, and violent crime in adulthood (Moffitt, Caspi, Harrington, & Milne, 2002). These problems exact incalculable damage to victims, perpetrators, and society at large. Adolescence is a particularly important developmental period for the study of aggression. Recent work has shown an increase in aggression across the first half of middle school, with rates leveling off by the end of middle school (Farrell, Sullivan, Esposito, Meyer, & Valois, 2005). Aggressive behavior during adolescence not only places adolescents at risk for physical injury, but also may damage relationships and impede adaptive developmental processes. For example, youth who cope with stress by using aggression may have fewer opportunities to learn pro-social coping strategies (Sullivan, Farrell, & Kliewer, 2006). Higher levels of aggressive behavior also predict increases in other risk-taking behaviors such as delinquency and drug use during adolescence (Farrell et al., 2005). Although many researchers agree that aggression is among the most serious problems facing society, a review of the psychological literature reveals serious controversy over how to define aggression in a meaningful and useful way to promote empirical progress toward understanding and identifying the critical aspects of aggression that are related to maladaptive developmental outcomes (Baron & Richardson, 1994).

Over the years, research on aggression has encompassed numerous definitions, within which various subtypes of aggression have emerged. Within the psychological literature more than 250 different definitions of aggression have been identified; yet broadly most of these definitions have two common elements that include the delivery of a harmful stimulus and the intention that the stimulus will be damaging to the victim (Harré & Lamb, 1986). Considerable debate exists, however, regarding how subtypes of aggression might best be accounted for based on varying definitions of the harmful stimulus and its method of delivery. For example, some definitions are distinguished based on whether the primary focus is on delivery of harm (objective, observable infliction of harm) or intention of action (subjective goal of harming) (Ramírez & Andreu, 2006). Hostile, reactive, impulsive, or affective aggression is characterized by the primary focus on infliction of harm, and is associated with anger and impulsiveness. In contrast, instrumental, proactive, premeditated, or predatory aggression is characterized by the primary focus on goal-oriented behavior to achieve specific aims (Ramírez & Andreu, 2006). Other researchers have used dichotomies of aggression, including physical versus verbal, active versus passive (Buss, 1961), indirect versus direct (Björkqvist, Lagerspetz, & Kaukiainen, 1992; Buss, 1961; Feshbach, 1969), physical versus social (Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989; Galen & Underwood, 1997), and overt versus relational (Crick, 1996; Crick & Grotpeter, 1995; Park et al., 2005). Given the abundance of aggression definitions in the current literature, researchers should focus on refining their work to categorize aggression in ways that best facilitate focusing prevention and intervention efforts on types of aggression most

predictive of negative developmental outcomes. In this way, the refinement of the defining of aggression may lead prevention and intervention work toward focused attention on those types of aggression that are most malleable, most dangerous, or most likely to predict negative outcomes for youth.

Two important components for differentiating subtypes of aggression that have not been directly addressed in the literature include the mechanism of action (i.e., whether or not the aggressive act involves a direct confrontation with the victim), and the vehicle of harm (i.e., the infliction of physical harm or threat of physical harm versus harm to an individual's relationships). Prior to the late 1980's, the majority of aggression research focused on direct, physical, and overt forms of behavior (Archer & Coyne, 2005). Although different labels were used for these forms of aggression, a key common element of each is that damage to the victim is inflicted in a direct, confrontational manner in the form of physical harm or threat of physical harm. Thus, these early efforts in aggression research focused primarily on forms of aggression in which the mechanism of action is direct confrontation with the victim and the vehicle of harm is physical injury or threat of physical injury.

More recently, the scope of aggression research has expanded to focus on less direct forms of aggression such as indirect aggression (e.g., Björkqvist, Lagerspetz, et al., 1992), relational aggression (e.g., Crick & Grotpeter, 1995), and social aggression (e.g., Galen & Underwood, 1997; Xie, Cairns, & Cairns, 2005). However, this research has progressed without a broad organizational structure or unifying framework to guide researchers' definitions of these constructs (Anderson & Bushman, 2002). For example,

most research on indirect aggression delineates the mechanism of action as non-confrontational (Björkqvist, Lagerspetz, et al., 1992; Buss, 1961; Richardson & Green, 2003); however, some research on indirect aggression has included confrontational actions (Feshbach, 1969). Furthermore, some research on indirect aggression includes studies evaluating both physical and relational vehicles of harm (Buss, 1961; Richardson & Green, 2003), whereas other research has limited the scope of the definition solely to acts focused on harming relationships (Björkqvist, Lagerspetz, et al., 1992; Feshbach, 1969).

Within the literature on social aggression, some studies have examined both confrontational and non-confrontational mechanisms of action (Galen & Underwood, 1997), although others have focused exclusively on non-confrontational acts (Xie et al., 2005). Studies on relational aggression have grouped items assessing both confrontational and non-confrontational mechanisms of action into one construct (Crick & Grotpeter, 1995). However, unlike studies of indirect aggression that include diverse parameters on both mechanism of action and vehicle of harm, research on relational and social aggression is united under the definitional characteristic that damage to the victim is achieved through the vehicle of harming relationships or social acceptance.

Further complicating these definitional inconsistencies, some measures of relational and social aggression have included ambiguous items that might be interpreted as either confrontational or non-confrontational in nature. For example, an item about leaving someone out of an activity (e.g., Prinstein, Boergers, & Vernberg, 2001) might be interpreted by some respondents as a direct refusal of access to a group event (i.e., saying

to someone, "You can't come to my birthday party unless you do what I say."), whereas other respondents might interpret such an item as referring to more indirect exclusion (i.e., intentionally not inviting a peer to go to the movies for the purpose of social exclusion, and that peer then finds out at school the next week that they were excluded). Such different interpretations could leave some participants reporting on one type of construct (e.g., confrontational aggression), while other participants could be reporting on a potentially different construct (e.g., non-confrontational aggression). Although such distinctions may or may not be relevant in predicting concurrent and future maladjustment, this remains an empirical question to be directly examined. And, in accordance with this line of reasoning, recent research on social aggression has proposed that certain types of non-confrontational social aggression may in fact be developmentally normative, whereas other types of confrontational aggression may predict future maladjustment due to the "at-risk configuration" in which the aggression is embedded (Xie, Cairns, & Cairns, 2002, p. 352). This "at-risk configuration" represents a combination of risk factors that have been associated with physical aggression (e.g., poor academic performance, school dropout, etc.), the convergence of which is predictive of maladaptive outcomes. Relational aggression that includes both confrontational and non-confrontational elements has been linked to both concurrent and future adjustment difficulties (Crick, 1996; Crick & Grotpeter, 1995; Crick, Ostrov, & Werner, 2006; Grotpeter & Crick, 1996; Prinstein et al., 2001; Storch, Bagner, Geffken, & Baumeister, 2004). In contrast, non-confrontational social aggression has not been consistently linked to risk factors in other developmental areas (Xie, Cairns, et al., 2002).

Without definitive identification and precise measurement of key factors that differentiate subtypes of aggression (e.g., mechanism of action and vehicle of harm), it is difficult to effectively explore whether subtypes of physical, relational, and social aggression are differentially related to psychosocial outcomes. Over two decades of research have demonstrated that violence can be prevented, and that primary prevention programs are often more cost-effective than other secondary or tertiary prevention options (Mercy, Krug, & Dahlberg, 2003). Although a large body of literature links physical aggression to psychosocial maladjustment (e.g., Cairns, Cairns, & Neckerman, 1989; Huesmann, Eron, & Lefkowitz, 1984; Moffitt et al., 2002), a better conceptualization of relational and social forms of aggression is needed to determine whether or not sub-categories exist (e.g., confrontational versus non-confrontational) and if these sub-categories are differentially related to adjustment. Given the immense cost of program implementation, prevention and intervention efforts should be directed at those specific types of aggression that are associated with maladaptive outcomes. Yet currently, the definitional inconsistencies across portions of the aggression literature make determining such factors difficult, if not impossible.

The present study addresses limitations in previous research by evaluating the fit of the competing factor structures, employing a confirmatory analytic approach that is well-suited for evaluating the construct validity of a scale that proposes an underlying factor structure. This study expands upon the existing literature by testing competing models of aggression that differentiate aggression based on the mechanism of action and the vehicle of harm. Furthermore, this study enhances current findings on aggression by

examining the fit of the aggression models separately across gender in a sample of urban, predominantly lower income, African American adolescents, a group in which the study of non-physical forms of aggression has often been neglected (Miller-Johnson, Moore, Underwood, & Coie, 2005).

Review of the Literature

The following sections review the literature on the multi-faceted nature of aggression. First, the developmental period of adolescence is discussed as it relates to the evolving nature of aggression in youth. Next, various subtypes of aggression are reviewed, including definitions, methods of measurement, prevalence, age and gender differences, and the correlates associated with specific types of aggression. Finally, this literature review concludes by highlighting evidence that supports the refinement of aggression measures to include the assessment of alternative subtypes of aggression, based on their mechanism of action and vehicle of harm.

The Developmental Period of Adolescence

The study of relational aggression in adolescence may be particularly important, as its impact may be especially salient due to developmental changes occurring both at the individual level in terms of cognitive and social-emotional development and more broadly within the context of friendships, peer group interactions, and social networks during this period (Yoon, Barton, & Taiariol, 2004). Individual cognitive and social-emotional growth influences changes in the quality and structure of friendships. As adolescents seek increasing independence from parents and place increased focus on their peer group, social status and acceptance by peers becomes increasingly important. This developmental period involves shifting social networks that change from predominantly same-sex peer groups in middle childhood to include both same-sex and other-sex peer groups in early adolescence. Concomitant with these changes in group dynamics, adolescents also become more aware and place more emphasis on their social position or

status within peer groups (e.g., whether they are core members, marginalized, or not included within particular peer groups) (Yoon et al., 2004). The pairing of these larger social context changes with changing individual cognitive and emotional frameworks may facilitate relational aggression and increase its significance at this developmental period.

Cognitively, adolescents develop increased inductive and deductive reasoning skills, particularly the ability to reason abstractly or reason about an argument objectively while suspending their own opinions or beliefs. Adolescents also grow in their metacognitive ability, or their ability to reflect upon and evaluate knowledge and thought. Furthermore, adolescents cognitively shift from childhood objectivism toward relativism, as they gain insight into multiple perspective-taking and relativism in understanding of what constitutes truth (Byrnes, 2003).

Concurrent with these cognitive changes, adolescents experience emotional development that may be conceptualized as quantitatively and qualitatively different than at other stages of development. With abstract reasoning, adolescents become increasingly able to "understand people as 'personalities' rather than simply agents of action" (Rosenblum & Lewis, 2003, p. 274). Emotions begin to be activated by abstract ideas and anticipated or recalled events. Further, the new experience of metacognition and realization of the world's inherent subjectivity may produce unique emotional reaction within individuals, particularly in response to the experience of the loss of objective, absolute reality. Adolescents become increasingly aware of contextually appropriate emotional display, and are able to both control emotional expression and articulate the

inner experience of feeling differently than what they outwardly express. By early adolescence, the experience of "mixed emotions," or the experience of having simultaneous but opposite feelings regarding a target, emerges. Emotional responses to relationships may intensify, and adolescents may become more introspective about their own emotional lives while also becoming more reflective on emotions of others. Finally, the cognitive and emotional development that occurs during adolescence facilitates increased capacity for empathy, the experience of which requires coordination of both cognitive perspective-taking skills and emotional arousal in response to another's emotional experience (Rosenblum & Lewis, 2003).

Within the adolescent developmental context, where peer relationships are both more highly valued and involve greater emotional intimacy, the use of relational vehicles of harm may be perceived as particularly damaging. Navigating peer relationships and successfully resolving interpersonal conflict are primary developmental tasks for adolescents facilitated by increasing social competence and social cognition (Yoon et al., 2004). Adolescence has been described as a time of "fusion of emotion and reason and the application of considerable cognitive powers, mainly toward figuring out the emotional world of interpersonal relationships" (Gottman & Mettetal, 1986, p. 202). However, although this advanced social cognition may be used in a pro-social manner to help resolve conflicts and maintain close relationships, it also may be used in maladaptive ways that facilitate social manipulation and relational aggression (Yoon et al., 2004).

Adolescence is a time when different social styles and norms become a focus of social comparison, as cliques and crowds emerge. Friendships offer increasing intimacy,

interdependence, and support; however, youth are simultaneously exploring different aspects of themselves in relation to others, and thus may move in and out of various social roles and relationships in an attempt to discover their self-identity (Bierman, 2004). Not surprisingly, adolescence has been described as a period devoted to the understanding of the self, accomplished in part by understanding the relation of the self to different groups of peers who may reflect differing life goals, world views, and lifestyles. This self-exploration is theorized to occur via self disclosure, problem solving, exploration of similarities and differences among friends and peers, and social comparison in the form of gossip (Gottman & Mettetal, 1986). Gossip and self-disclosure are utilized "in the service of relentless analysis and solving problems about emotional situations in personal relationships, all of which have to do with the goal of understanding the self" (Gottman & Mettetal, 1986, p. 207). Such emphasis on intimacy, self-disclosure, and self and relational analysis, however, may foster social contexts in which relational aggression may flourish.

For many youth, an important contextual environmental change that occurs during adolescence is the move from smaller elementary school settings to larger middle school and high school settings with distinctively different social hierarchies and institutional bureaucracies that influence the context of social interactions between students and with students and teachers. During adolescence, highly visible and desirable school-sponsored extracurricular activities, such as cheerleading and sports, are related to popularity and peer status in a manner that may be qualitatively different from extracurricular activity participation in middle childhood (Eder & Kinney, 1995). However, at a developmental

period when social status and peer acceptance are particularly salient, competition for friends, romantic partners, and social visibility may generate conflicts that result in the use of social or relational aggression (Xie et al., 2005), and thus the evolving nature of extracurricular participation may contribute to the unique influence of relational aggression in adolescence.

Although a number of school-based youth violence prevention programs exist, limited discussion has taken place among middle and high school educators on prevention and intervention for relationally aggressive behaviors (Yoon et al., 2004). In fact, students have reported that teachers do not get involved enough in preventing or intervening during relationally aggressive exchanges (Casey-Cannon, Hayward, & Gowen, 2001). Such lack of teacher involvement may reflect widely-held beliefs that relational aggression is normative and transient (Yoon et al., 2004). Alternatively, lack of teacher involvement in relational aggression may reflect the impact of the structure of middle schools and high schools where students change classes a number of times each day and teachers and students may not know each other as personally as may have been the case in traditional elementary school classrooms. In addition, the very nature of relational aggression makes its perpetrators more elusive than some other forms of more direct and physical aggression. Despite research demonstrating the importance of nonacademic contextual factors such as the perception of a caring, supportive school community (Baker, 1998), current school-based prevention programs typically have been more targeted toward overt forms of conflict, such as physical violence and bullying, with relatively less attention devoted to relationally aggressive behaviors that may have

substantive impact on the perception of care and support in the school community (Yoon et al., 2004). Given students' need for both physical and psychological safety within their school community, relational aggression may be a particularly important element to consider in the development of school-based violence prevention programs.

Focusing on the social and cognitive developmental context of adolescence in aggression research and prevention may be of primary importance (Boxer, Goldstein, & Musher-Eizenman, 2005). For example, across the middle school years, in both urban and rural samples, frequencies of aggressive behavior have been demonstrated to increase from sixth through seventh grades, and to level off or even decline slightly by the eighth grade (Farrell et al., 2005). However, social aggression has been shown to increase during the transition from childhood to adolescence, as the cognitive and social skills develop to facilitate the processing and utilization of complex social information in non-confrontational attacks (Xie et al., 2005).

Given the social, emotional, and cognitive developmental tasks of adolescence, such as seeking independence from parents, increasing dependence on peers, shifting social networks to include same-sex and other-sex peers, and exploring the self in relation to others (Gottman & Mettetal, 1986; Yoon et al., 2004), the value placed on relationships and intimacy expressed within relationships makes the period of adolescence particularly relevant for studying relational aggression. The transition from elementary-style classrooms to larger, more independent class experiences of middle school and high school systems present a context in which positive social and cognitive developmental changes may unfold; however, the interaction of this new context with

developmental challenges may, for some adolescents, relate to the emergence or perpetuation of aggressive behaviors, particularly in relational and social forms.

Definitions of Aggression

Aggression. One limitation in the current psychological literature is the absence of a unifying framework to guide definitions and research on aggression (Anderson & Bushman, 2002), perhaps most notably evidenced by the more than 250 different definitions of aggression in the literature (Harré & Lamb, 1986). Although a full conceptualization of all facets of these definitions of aggression is beyond the scope of this investigation, several key issues and dimensions by which aggression has been defined are reviewed below. Coie and Dodge (1998) highlight the difficulties of forming precise definitions for constructs such as aggression, antisocial behavior, and delinquency, which are distinct but often overlapping constructs. Some definitions of aggression more broadly encompass property loss or damage; however, the relevant nature of those types of instrumental aggression is the use of threat or force. Debate also exists within the literature regarding whether to include intent to harm or injure the victim in the definition of aggression. This debate often focuses on the idea that the inclusion of intentionality, which is not observable and often inferred, complicates the measurement of aggression. For example, ethologists have attempted to study aggression in terms of directly observable behavior, without consideration of intent; however, such attempts have not been widely embraced in the study of human aggression due to the advanced social value judgments involved in human aggression. Attempts at studying aggression without the component of intent (e.g., definitions focused solely on outcomes that result

in injury) ease measurement concerns. However, such definitions also result in the inclusion of accidental harm, such as a doctor who accidentally hurts a patient, and exclude from aggressive behavior those acts that were intended to harm but accidentally do not result in injury, such as a gunman who misses the target. In addition to debate surrounding intent as an antecedent to aggression, emotional arousal has also been debated as a necessary antecedent in aggression definitions. However, as with intention, emotional arousal must often be inferred, and exclusive focus on the antecedent condition of arousal may not produce a complete conceptualization of aggression in the absence of consideration of outcome. Furthermore, aggression may be culturally determined based on a weighting of factors such as intention, antecedent conditions, injury and outcomes, situational context, and status of aggressor and victim. Various cultures may place differing importance on these various factors, resulting in culture-specific judging and application of cultural standards in labeling behavior. For example, gender may play a primary role in differential interpretation of aggressive behaviors, highlighting the important role of culture (Coie & Dodge, 1998).

Other key conceptualizations of aggression include Baron and Richardson's (1994) definitional components that include (*a*) aggression as a behavior, rather than an emotion, motive, or attitude, (*b*) aggression as the intent to harm, despite the empirical difficulties presented by the notion of intention, (*c*) aggression as harming, injuring, or delivering aversive consequences, (*d*) aggression as actions targeted toward living beings, and (*e*) aggression as action which the recipient is motivated to avoid. Others have simplified the requirements of aggression to include the delivery of a harmful stimulus

and the intention that the behavior will be harmful to the victim (Harré & Lamb, 1986). Although many researchers have posited more elaborate conceptualizations of aggression, these two components (i.e., delivery of harm to a victim and intention that the act will be harmful to the victim) represent a key continuity in the major criteria used throughout the body of literature on aggression.

Many subtypes of aggression may be delineated based on these elements of harm and intent, including hostile and instrumental, reactive and proactive, impulsive and premeditated, and affective and predatory (Ramírez & Andreu, 2006). Hostile aggression, also referred to as reactive, impulsive, or affective aggression, refers to aggression in which the primary goal of the aggressor is causing damage to the victim (Baron & Richardson, 1994; Ramírez & Andreu, 2006). In other words, the hostile aggressor simply desires to harm the victim. Alternatively, instrumental aggression, also referred to as proactive, premeditated, or predatory aggression, refers to aggression in which the primary desire is not to inflict suffering on the victim per se, but rather to gain other desired goals (Baron & Richardson, 1994; Ramírez & Andreu, 2006). For the instrumental aggressor, then, aggression is a means to an end, rather than an end in itself.

Despite the acceptance of the hostile versus instrumental distinction within the psychological literature, some critics have noted that both hostile and instrumental acts of aggression are directed toward specific goals (i.e., the goal of harming a victim and the goal of attaining other outcomes in addition to the harm itself), and thus could both be considered differing forms of instrumental action (Baron & Richardson, 1994). In contrast, annoyance-motivated aggression, or aggression with the goal of reducing

unpleasant conditions such as anger or maltreatment by others, and incentive-motivated aggression, or aggression with the goal of gaining external incentives, have been posited as a means of specifying the type of goal-directed behavior exhibited, while avoiding the implication that hostile aggression is distinguished from instrumental aggression based on the presence of goal-directed behavior (Zillmann, 1979). The hostile versus instrumental dichotomy has been further elaborated upon using the distinction of reactive aggression, or aggression that is retaliatory, less-controlled, and often in response to frustration or blocked goals, and proactive aggression, or aggression with relatively non-emotional, controlled action toward the goal of attaining a specific outcome (Dodge & Coie, 1987).

Other approaches to defining aggression have included conceptualizing aggression into dichotomies such as physical versus verbal, active versus passive (Buss, 1961), indirect versus direct (Björkqvist, Lagerspetz et al., 1992; Buss, 1961; Feshbach, 1969), physical versus social (Cairns, Cairns, Neckerman, Ferguson et al., 1989; Galen & Underwood, 1997), and overt versus relational (Crick, 1996; Crick & Grotpeter, 1995; Park et al., 2005). However, these dichotomies have been derived without specific attention to the mechanism of action and vehicle of harm employed, resulting in a mixture of various mechanisms of action (e.g., confrontational and non-confrontational forms of aggression) along with a mixture of vehicles of harm (e.g., physical harm, relational harm, and social harm) across this body of literature.

This current investigation focuses on the relatively novel distinction between mechanism of action (i.e., whether or not the aggressive act involves a direct confrontation with the victim) and vehicle of harm (i.e., type of harm delivered, such as

physical or relational damage to the victim). This method of conceptualizing aggression allows direct evaluation of the competing factor structures posited from previous literature, such as research on indirect versus direct aggression that considers the mechanism of action domain without regard for the vehicle of harm (e.g., Richardson & Green, 2003) and research on physical versus relational or social aggression that isolates the vehicle of harm without evaluating the mechanism of action (e.g., Crick & Grotpeter, 1995; Galen & Underwood, 1997). Further, the current paradigm avoids the empirical complication of the evaluation of emotional state, antecedents, and consequences, and limits evaluation to the specific, operationalized aggressive act.

Physical and verbal aggression. The Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control, utilizes a definition of youth violence including both the intentional use of physical force as well as the threat of physical force, including acts with a high likelihood of causing injury, death, psychological harm, maldevelopment, or deprivation (Mercy, Butchart, Farrington, & Cerdá, 2002). The mechanism of delivery for such acts is direct confrontation, with physical injury or threat of physical injury serving as the vehicles of harm. Physical aggression has also been defined as acts that are intended to cause bodily harm, such as hitting or kicking (Bierman, 2004), without clear reference to threats of physical harm. It is important to note that whereas some definitions of physical aggression include threats of physical harm (e.g., Crick et al., 1999; Farrell, Kung, White, & Valois, 2000, Mercy et al., 2002), other definitions consider threats of physical harm to be encompassed within the construct of direct verbal aggression (Björkqvist, Österman, & Kaukiainen, 1992).

Consistent with CDC guidelines, the present investigation conceptualizes physical aggression as including both actual physical harm as well as threat of physical harm within the domain of physical aggression.

Verbal aggression has been defined in many ways, including verbal threats of physical harm (Björkqvist, Österman, et al., 1992) and verbal discrimination (i.e., negative treatment toward members of a group that is perceived as being inferior) (Graumann, 1998). Buss (1961) characterized verbal aggression as delivering harm through rejection and threat. In the development of their Aggression Questionnaire, Buss and Perry (1992) include using "strong language to cut people down," yelling in arguments, and openly displaying disagreement toward others within their conceptualization of verbal aggression (p. 456). Cross-culturally, verbal aggression has included saying derogatory things (i.e., things that may be unprovoked, delivered with varying frequency, and may regard disability, race, or sexual orientation) as well as more manipulative strategies, such as spreading rumors about an individual (Smorti, Menesini, & Smith, 2003).

It is also important to distinguish physical aggression from other types of externalizing behaviors and delinquency. Although physical aggression has been conceptualized within a broader context of externalizing behaviors including substance use, delinquency, and problem behaviors (Deater-Decard, Dodge, Bates, & Petit, 1998; Jessor & Jessor, 1977), research using confirmatory factor analysis supports models that include separate factors for aggression, drug use, and delinquent behavior as specific domains, rather than combining these factors into a more general problem behavior

construct (Farrell et al., 2000). Such distinctions delineate aggression as a separate construct from substance use (including cigarettes, alcohol, and drugs) and delinquency (including skipping school, property damage, theft, cheating, and school suspension) (Farrell et al., 2000), despite the frequent co-occurrence of aggression and antisocial behavior, particularly in adolescence (Coie & Dodge, 1998). Despite the inconsistencies in definitions of physical and verbal aggression (Björkqvist, Österman, et al., 1992; Crick et al., 1999; Farrell et al., 2000), and the overlap with other externalizing behaviors in some of the existing literature (Deater-Decard et al., 1998; Jessor & Jessor, 1977), the direct, observable nature of physical aggression and threat of physical aggression generally simplifies debate surrounding its primary definitional characteristics, particularly in comparison to some other, less well-defined forms of aggression.

Indirect aggression. In some ways, the study of indirect aggression may be considered a conceptual and historical bridge between the study of overt forms of physical and verbal aggression and the study of more covert forms of relational and social aggression. In an early account of indirect aggression, Buss (1961) delineated indirect aggressive acts into "verbal (spreading nasty gossip) or physical (a man sets fire to his neighbor's home)" forms (Buss, 1961, p.8). He noted that the covert nature of indirect aggression presented a distinct advantage from the aggressor's perspective, by avoiding counterattack by making it difficult for the victim to identify the source or perpetrator of the aggression. However, in his description of general verbal aggression, he also noted the tendency of psychologists to define harm with the vague concept of "psychic injury," a term he considered "fuzzy and imprecise," and thus concluded that "it is preferable to

avoid the notion of a bruised or wounded ego" (Buss, 1961, p.6). Although Buss rejected

the notion of intent in his definitions of aggression, due to its inconsistency with

behavioral observation methodology, he did conclude that "the noxious stimuli delivered

in verbal aggression are rejection and threat," which would appear to be applicable more

specifically to the concept of indirect verbal aggression as well (Buss, 1961, p.6). Thus,

according to Buss's definition, indirect aggression is characterized by non-

confrontational mechanisms of action and physical or relational vehicles of harm.

In one of the early published studies on indirect aggression, Feshbach (1969)

noted that social injuries, such as exclusion and rejection, may be used as indirect

methods for satisfying the same aggressive motives that other more direct methods might

also assuage. Feshbach's inclusion of nonverbal behaviors in the definition of indirect

aggression (Feshbach, 1969; Feshbach & Sones, 1971) marked an important expansion

upon Buss's original definition of indirect aggression as involving only verbal or physical

acts, opening up the field for future work focusing on social and relational conflicts

played out through indirect nonverbal means. However, despite Feshbach's interest in

indirect mechanisms of aggressive action, her research actually included observation of

confrontational methods of relational harm.

Focusing on Buss's (1961) original description of indirect aggression as

advantageous for the aggressor by masking his or her identity, Björkqvist, Lagerspetz,

and Kaukiainen (1992) defined indirect aggression as "a type of behaviour in which the

perpetrator attempts to inflict pain in such a manner that he or she makes it seem as

though there has been no intention to hurt at all. Accordingly, he or she is more likely to

avoid counteraggression and, if possible, to remain unidentified" (p.118). Furthermore, they noted that the use of other people as the mechanism for inflicting harm may be a key feature of indirect aggression; however, this type of manipulation necessitates a social structure that facilitates such methods (Björkqvist, Lagerspetz, et al., 1992). Examples of such indirect means of aggressing include gossiping or spreading rumors, saying "I'm not your friend," becoming someone else's friend as revenge, and shunning others (Björkqvist, Lagerspetz, et al., 1992).

Although much of the current research on indirect aggression parallels this definition that highlights an increased focus on the role of people and relationships as the vehicle of indirectly delivering harm, Richardson and Green (2003) defined indirect aggression more similarly to Buss's original definition. Their work defined indirect aggression as physical or verbal behavior delivered circuitously, through another person or object, with the goal of harming the victim. Examples include making up stories to get someone in trouble, spreading rumors, telling others not to associate with someone, taking someone's possessions, and destroying or damaging someone's possessions (Richardson & Green, 2003). According to Richardson and Green, then, indirect aggression is a non-confrontational method for delivering physical or relational harm; however, consideration of property damage as delinquency rather than aggression is more consistent with the current literature (Farrell et al., 2000).

Relational aggression. Relational aggression has been defined as behaviors that harm others by damaging or manipulating peer relationships and are detrimental in terms of adolescents' needs for acceptance and inclusion, with relationships specifically serving

as the vehicle of harm (e.g., Crick, 1996; Crick, 1997; Crick & Grotpeter, 1995).

Examples of such behavior include threatening to terminate a friendship, ignoring,

exclusion, and gossip/rumor-spreading. These behaviors may be either directly

confrontational (e.g., saying, "I won't be your friend anymore unless you do what I

want") or indirect and non-confrontational (e.g., some forms of social exclusion and

ignoring); the behaviors also may involve peer social networks (e.g., gossip) or dyadic

relationships (e.g., threatening to end a friendship). The only definitional requirement is

accomplishing harm through the damage of relationship(s).

Goldstein and Tisak (2004) based their relational aggression work on this

definition posed by Crick (e.g., Crick, 1996), specifically noting the nature of relational

aggression as including behaviors that may or may not be indirect and as excluding non-

verbal behaviors (such as eye-rolling or gesturing). Examples of relational aggression

studied in their research were limited to gossiping behind someone's back and social

exclusion accomplished by not inviting someone to a party after having had a

disagreement with them. The Crick definition of relational aggression (e.g., Crick, 1996)

has also guided other work in the field, with some newer work focusing on aspects of

social exclusion, making the subtle distinctions in this dimension of aggression between

being left out of an activity or conversation as opposed to being excluded from a larger

social event or party (Prinstein et al., 2001; Vernberg, Jacobs, & Hershberger, 1999).

Further building upon Crick's definition of relational aggression (e.g., Crick

1996), relationally aggressive behaviors have been delineated by direct control (e.g., "I

won't be your friend unless you do this"), social alienation (e.g., silent treatment),

rejection (e.g., telling rumors or lies so others will reject the victim), and social exclusion

(e.g., excluding a peer from the social group or an event) (Yoon et al., 2004). The

distinction has also been explicated that relational aggression may include actual damage

or threatened damage to the victim's relationships (Zahn-Waxler, Park, Essex, Slattery, &

Cole, 2005).

Social aggression. Research on social aggression has defined this construct as

including gossiping, social exclusion, social isolation, social alienation, communicating

(verbally, electronically, or in written form) about someone behind his or her back,

stealing friends or romantic partners, triangulating relationships, and betrayals of trust.

The two distinguishing characteristics of social aggression, according to this research, are

that the actions cause interpersonal damage by concealed, non-confrontational methods

and that they involve the social community as the vehicle of harm (Xie et al., 2005). In a

broader view, social aggression has been defined as including negative facial expressions

and body gestures, thus widening the definitional criteria to include both confrontational

and non-confrontational mechanisms of action, while maintaining the second definitional

point of involvement of the social community (e.g., peer social networks) as the vehicle

of harm (e.g., Galen & Underwood, 1997).

Summary of definitions. A number of complexities exist in broadly defining

aggression and in specifically defining subtypes of aggression. Buss (1961) delineated the

dichotomies of physical versus verbal and direct versus indirect aggression, which have

on a theoretical level been widely accepted; however, the physical versus verbal

dichotomy has been utilized to a significantly greater extent in operationalization and

measurement of aggression, which may have created a biased view of aggression in the existing literature (Björkqvist, Österman, et al., 1992). Due to its overt, observable nature, physical aggression is, perhaps, the most clearly and easily defined form of aggression; yet even within the physical aggression literature some debate has unfolded over the years about intricacies of that definition. For example, it is clearly important to distinguish physical aggression from other forms of externalizing behaviors, such as delinquency and substance use (Farrell et al., 2005; Sullivan et al., 2006). As an example, although some researchers have included covert physical acts, such as theft of valued possessions and property damage, within their definitions of aggression (Richardson & Green, 2003), such actions may better reflect delinquent behaviors.

Furthermore, the inclusion of verbalizations in conceptualizations of aggressive subtypes is complicating because of differences in the ultimate goal or intent of the verbal act. For example, some researchers have included verbal threats of physical harm within the domain of verbal aggression (Björkqvist, Österman, et al., 1992); however, insofar as the intended harm of such actions is verbally-mediated physical intimidation, they may best be conceptualized as physical aggression (Crick et al., 1999; Farrell et al., 2000). Similarly, verbally aggressive insults could be included within the domain of verbal aggression, even when the intent of such acts is social or relational manipulation; however, insofar as the intended harm is social or relational damage, such actions may best be conceptualized as social or relational aggression (Crick, et al., 1999; Galen & Underwood, 1997).

Indirect, relational, and social aggression, while superficially similar, perhaps most notably by their apparent dissimilarity to physical aggression, have in fact been defined quite differently across the various instances of their use. Although these forms of aggression are commonly referred to collectively as covert, alternative, indirect, subtle, or hidden (Galambos, 2004; Simmons, 2002; Underwood, 2003), they in fact do not uniformly reference acts that are necessarily non-confrontational. Across terms, these constructs have been defined as involving both confrontational and non-confrontational mechanisms of action and as including harm to the victim achieved through physical or relational means. Perhaps more troubling, however, is that even within terminologies, these terms for subtypes of aggression may be used to represent different dimensions on the mechanism of action and vehicle of harm axes by different researchers.

Although relational and social aggression researchers agree that the vehicle of harm is damage to relationships with friends and peers through either dyadic or triadic interactions or through interactions within larger social networks, there is currently considerable debate regarding the mechanism of action (i.e., confrontational or non-confrontational actions) (Crick & Grotpeter, 1995; Galen & Underwood, 1997; Xie et al., 2005; Yoon et al., 2004). For example, studies evaluating both confrontational and non-confrontational forms of relational aggression have shown links to adjustment difficulties (Crick, 1996), whereas researchers considering non-confrontational acts have not demonstrated links to maladjustment and in fact have theorized that such actions may be considered developmentally normal (Xie, Cairns, et al., 2002). Whereas a primary distinction in the current literature exists between harming a victim through a relationship

(i.e., relational aggression) as opposed to damage achieved through the social network (i.e., social aggression), the distinction between harm through a relationship versus a social network seems theoretically less relevant in distinguishing subtypes and perhaps in predicting correlates and outcomes such as psychosocial adjustment. In contrast, the consequences of confrontational versus non-confrontational distinctions may be particularly relevant in defining and researching aggression. Thus, while social and relational aggression research currently bases primary distinctions on the relationship versus the social network used to achieve harm, a more fruitful avenue of subtype comparison may be to unite social and relational fields under their commonality of peer-based harm, and distinguish them based on their mechanism of confrontational or non-confrontational harm. Table 1 summarizes various researchers' definitions of indirect, relational, and social aggression, highlighting discrepancies across the mechanism of action and vehicle of harm domains. Table 2 summarizes general current trends in research on physical, indirect, relational, and social aggression, including outcomes associated with these forms of aggression.

After reviewing the various ways in which terms for aggression subtypes are utilized in the literature, one must almost inevitably return to the broadest definitional terms of aggression as their commonality, namely, that there is the delivery of a noxious stimulus, and that the stimulus is intended to harm the victim (Harré & Lamb, 1986). No further definitional characteristics along the dimensions of mechanism of action or vehicle of harm remain consistent at present throughout this body of literature. Establishing such an overarching and unifying theoretical framework for aggression

research based on mechanism of action and vehicle of harm could clarify existing

discrepancies in the research as well as provide a structure for developing and

progressing prevention and intervention efforts.

Table 1. *Summary of definitions of indirect, relational, and social aggression.*

Terms by Researcher(s)	Vehicle of Harm	Confrontational	Non-Confrontational	Social Network Involvement	Examples
Indirect Aggression (Buss, Richardson)	Physical or Relational Harm	None	All	Sometimes	Gossip, Secretly Stealing or Damaging Someone's Property, Making Up Stories About Someone
Indirect Aggression (Feshbach)	Relational Harm	All	None	Sometimes	Ignoring, Avoiding, Excluding
Indirect Aggression (Björkqvist, et al.)	Relational Harm	None	All	Usually	Gossip, Becoming Someone Else's Friend for Revenge, Saying "I'm not your friend," Social Isolation, Shunning
Relational Aggression (Crick)	Relational Harm	Some	Some	Sometimes	Threatening to Terminate a Friendship, Social Exclusion, Ignoring, Gossiping
Social Aggression (Xie/Cairns)	Social Harm	None	All	Always	Social Alienation, Gossip, Isolation, Writing/Passing Notes, Stealing Friends
Social Aggression (Underwood)	Social Harm	Some	Some	Sometimes	Gossip, Exclusion, Facial Expressions, Body Gestures

Table 2. *Summary of aggression subtypes via the vehicle of harm and mechanism of action, and associated outcomes.*

Aggression Subtype	Vehicle of Harm	Mechanism of Action	Outcomes
Physical Aggression	Physical Harm	Confrontational	Maladaptive
Indirect Aggression	Primarily Relational/ Social Harm	Primarily Non-Confrontational	Normative
Relational Aggression	Relational Harm	Confrontational and Non-Confrontational	Maladaptive
Social Aggression	Social Harm	Non-Confrontational	Normative

Measurement of Aggression

Overview of aggression measurement. The systematic study of aggression is difficult because the behavior itself is dangerous and relatively infrequently displayed in a public context. Observing naturally occurring instances of aggression resolves the ethical limitations associated with direct involvement with or encouragement of aggression; however, the findings from such observations may be ambiguous, such as when two individuals might appear to be acting aggressively but could actually be engaging in friendly but rough exchanges. Furthermore, such non-experimental approaches limit researchers' causal inferences. Archival research allows relatively bias-free analysis of existing data; however, the use of existing crime statistics and other public records is often limited and may be only tangentially related to a researcher's specific interests. Self-report questionnaires are used extensively in research, allowing for reporting on behaviors that may be difficult or impossible for outside witnesses to accurately observe; however, self-report biases may be introduced. Ratings by others who know the participant well, such as parents, teachers, or classmates, may present more objective information than self-reports; however, such ratings are dependent upon the person's perceptions of the participant, which themselves may be biased or limited to certain social contexts (e.g., school). Further, ratings by others are necessarily limited to domains of which the individuals possess direct knowledge, which may limit their usefulness, depending on the specific construct being assessed (e.g., less overt forms of aggression). Projective techniques, such as the Thematic Apperception Test (TAT) and the Rorschach Inkblot Test, may provide indirect information about aggression in a

manner that disguises the researcher's intent; however, such methods provide only general information about tendencies toward anger and hostility, rather than specific information about actual use of aggression. Aggression has also been assessed in laboratory observations, such as observations of aggressive play, and verbal and physical aggression toward confederates. Although such procedures offer great control over external variables, they have been criticized for lack of internal and external validity (Baron & Richardson, 1994).

Physical aggression. Physical aggression has been assessed over the years using a wide variety of both experimental and non-experimental methods. Direct physical aggression has been measured in numerous studies through laboratory procedures involving the "Buss Aggression Machine" and other procedures with slight variations, similar to the classic Milgram studies of obedience. In the Buss paradigm, a participant is instructed to provide electric shocks of an intensity of their choosing to another individual (an accomplice), in what is described to the participant as an experiment on learning. Aggression in these studies is then assessed based on the intensity of the shocks selected and administered by the participant. One common variation on this research methodology involves the administration of unpleasant blasts of noise rather than electric shocks. Such methods, however, have been criticized for both ethical and validity reasons (Berkowitz, 1993). Studies have also employed laboratory observations of children's aggression against inanimate play objects, such as the classic Bandura studies with a "Bobo doll;" however, such observations have been criticized as being forms of play, rather than aggression per se, since no living thing is harmed and the objects "aggressed"

against are designed to be targets of rough play (Baron & Richardson, 1994). Physical aggression has also been evaluated using naturalistic observation and archival research, such as through records of riots and FBI and police statistics (Baron & Richardson, 1994); however, current conceptualizations of delinquency and antisocial behavior as separate constructs from aggression limit the usefulness of some archival data sources in the specific assessment of aggression. Behavioral coding of videotaped interactions between friends has been used for coding deviant verbalizations, deviant behavior and gestures, deviant conversation content, interpersonal processes, and normative talk (Dishion, Nelson, & Bullock, 2004; Dishion, Nelson, Winter, & Bullock, 2004; Dishion & Owen, 2002); however, these observations focused primarily on friendship qualities and deviance, rather than aggression per se.

Physical aggression in childhood is often assessed by parent, teacher, and/or peer ratings, as well as self-report (Baron & Richardson, 1994). For example, the Achenbach Child Behavior Checklist (CBCL) and Teacher's Report Form (TRF) are some of the most commonly used parent and teacher rating forms, and the corresponding Youth Self-Report (YSR) is a commonly used self-report measure encompassing various dimensions of adaptive and maladaptive functioning, including aggression (e.g., Achenbach, Dumenci, & Rescorla 2002). Examples of items from the aggression component of the CBCL include "Gets in many fights," and "Physically attacks people."

Another example of a physical aggression questionnaire is the Problem Behavior Frequency Scale (PBFS), which contains subscales assessing self-reported frequency of both physical and non-physical (i.e., verbal) aggression over the previous 30 days (Farrell

et al., 2000). Examples of physical aggression items from the PBFS include "Shoved or pushed another kid," "Hit or slapped another kid," and "Threatened to hit or physically harm another kid." Examples of non-physical aggression from the PBFS include "Insulted someone's family," "Teased someone to make them angry," and "Put someone down to their face."

The Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992) is a widely used rating scale of adaptive and problem behavior, including child and adolescent versions of parent, teacher, and self-report indices. The BASC generates numerous scale scores and composites, including a total score, externalizing score, aggression score, and conduct problems score. In addition to the standardization and norming by Reynolds & Kamphaus (1992), the BASC has demonstrated reliability and validity in numerous studies (e.g., Flanagan, 1995).

In addition to the many standardized and published scales of aggression, numerous researchers have developed versions of scales assessing physical aggression, such as the overt aggression scale of the Peer Experiences Questionnaire, with items such as "I hit, kicked, or pushed another teen in a mean way," and "I threatened to hurt or beat up another teen" (Prinstein et al., 2001), and the overt aggression scale of the peer nomination instrument used by Crick and colleagues, with items including hitting, pushing, shoving, physical fighting, and threats to hit or beat up (Crick, 1996; Crick & Grotpeter, 1995). Vignettes regarding physical aggression have also been used, such as on the Social Behavior Questionnaire (SBQ; Galen & Underwood, 1997). An example of a physical aggression vignette from that measure is, "You are bouncing a ball when a girl

[or boy] comes over and hits you hard, then grabs the ball, saying 'I'm going to play with this now'" (Galen & Underwood, 1997, p. 592). Semi-structured individual interviews have also been used to assess physical aggression, where students were asked to identify peers at school who bothered them or caused them trouble and describe the conflicts in detail. Physical aggression was then coded in the narratives as acts that were "hostile and anger charged, such as fighting, hitting, pushing, kicking, and throwing a chair at someone" (Xie, Cairns, et al., 2002, p. 345).

Indirect aggression. Indirect aggression has been assessed using behavioral observations, peer-nominations, and self-reports. Early work on indirect aggression involved laboratory observations of a situation in which a newcomer is introduced to a cohesive set of first graders (Feshbach, 1969). In this paradigm, two children were selected from the same classroom and in the first experimental session were informed that they were in a special club and had the opportunity to play with special toys. The children were given club badges and were promised that they would have another club meeting the next week. Following these attempts to develop a sense of cohesiveness, the first graders were left alone to play with toys for the remainder of the first session. The second session began by rekindling the sense of group cohesiveness, returning their badges, and reminding them of their club name. An outsider was then introduced to the play session and the three children were allowed to play and were observed through a concealed observation booth (Feshbach, 1969). A modified version of this research methodology was later used with seventh and eighth graders, where two eighth graders were selected to participate based on teacher and self-report of being close friends. They

were introduced to the experimental session wherein they were instructed to solve common social problems with which adolescents could readily identify. Later, a seventh grader was introduced to the experimental session and the triad was observed solving two additional social problems (Feshbach & Sones, 1971). Indirect forms of aggression were then rated by observers.

More recently, Richardson and Green (2003) developed a self-report measure for college students with items measuring verbal indirect aggression (spreading rumors, making up stories to get someone in trouble) and physical indirect aggression (taking or damaging someone's property); however, the majority of the current research on indirect aggression has proceeded using peer nomination (e.g., Björkqvist, Lagerspetz, et al., 1992). In this research, indirect aggression was assessed using peer nominations of other children in the same class, paired with self-ratings of participants' own behavior (Björkqvist, Lagerspetz, et al., 1992). Indirect aggression has also been measured through peer ratings on specific behaviors such as "Tells untruth behind the back" or "Tries to get the other on his or her side," and structured individual interviews (Lagerspetz, Björkqvist, & Peltonen, 1988). Although this work has focused primarily on eight to fifteen-year-olds (e.g., Björkqvist, Lagerspetz, et al., 1992; Lagerspetz, et al., 1988; Österman, et al., 1998), some assessments have included adults (Björkqvist, Österman, & Lagerspetz, 1994).

Relational aggression. Relational aggression has been evaluated most extensively using peer nomination and teacher ratings but also has been assessed using self- and parent-report measures and naturalistic observations (Crick, 1996; Crick, 1997; Crick &

Grotpeter, 1995). Examples of items from Crick and colleagues' measurement include rumor-spreading, telling friends that they will stop liking them unless they do what they say, exclusion from the peer group, and ignoring or not talking to the peer. The teacher rating instrument for relational aggression used in these studies has recently been adapted for parent report; however, the revised parent version has only been used in limited work (Crick et al., 1999). High school students' peer status and relational aggression have been assessed by peer nomination, with relational aggression nominations on the item, "Who uses their friendships as a way of being mean to others—for instance, by telling people that they will not be their friend, excluding someone from their group of friends, or giving someone the 'silent treatment'?" (Prinstein & Cillessen, 2003, p. 318). Relational aggression has also been measured by peer nomination among college athletes, including nomination of peers on items such as, "When mad, this person retaliates by excluding others from activities" (Storch, Werner, & Storch, 2003, p. 158).

Self-report measures of relational aggression, such as the Children's Peer Relations Scale (Crick & Grotpeter, 1995) have been used in limited work, although other measures, such as the Problem Behavior Frequency Scale (Farrell et al., 2000) have been used more widely to examine physical, nonphysical, and relational aggression. Whereas the PBFS (Farrell et al., 2000) nonphysical aggression scale focuses primarily on verbal aggression (insulting someone's family, teasing someone, putting someone down), the relational aggression subscale, based on Crick and Grotpeter's (1995) work, includes items such as "Not let another student be in your group anymore because you were mad at them," "Told another kid you wouldn't like them unless they did what you

wanted them to do," and "Tried to keep others from liking another kid by saying mean things about him/her." The Peer Experiences Questionnaire is a self-report measure that has been used to assess both overt and relational aggression and victimization, including relational aggression items such as, "I left another teen out of what I was doing," "I did not invite another teen to a party or other social event even though I knew he or she wanted to go," and "I gave another teen the silent treatment (did not talk to them on purpose)" (Prinstein et al., 2001). Self-report scales of relational aggression have also been used with college samples, including a measure of peer relational aggression measuring the frequency of attempts or threats to harm relationships through actions such as shunning, ignoring, and spreading rumors (Storch et al., 2004).

Hypothetical vignettes portraying gossip and peer exclusion have been used to measure relational aggression among primarily middle-class, Caucasian, mid-to-late adolescents and college students (Goldstein & Tisak, 2004). Observational methods have been used to assess relational aggression among fourth grade rejected, popular, and average-status girls participating in familiar and unfamiliar playgroups (Putallaz, Kupersmidt, Coie, McKnight, & Grimes, 2004). Naturalistic observation has also been used to assess relational aggression among preschoolers; however, valid observational assessment of relational aggression may be problematic for outside observers who lack knowledge of the relational context of the peer group observed (Crick et al., 1999).

Social aggression. Social aggression has been measured using narrative reports of conflicts from semi-structured individual interviews with elementary and middle school students (e.g., Xie, Cairns, et al., 2002). These narratives were coded for the identity of

people involved, structure of the conflict (dyadic, triadic, multiple), attribution of responsibility for conflict initiation, participant's aggressive behaviors, and other person's aggressive behaviors. Further, participants were scored according to the number of times they were identified as using social aggression in their peers' conflict narratives (Xie, Cairns, et al., 2002).

Social aggression has also been measured among predominantly lower income youth of European American descent using hypothetical vignettes describing social interactions involving either physical attacks or social attacks between same-sex peers (the Social Behavior Questionnaire, SBQ). For example, one of the social aggression vignettes was, "Four girls [or boys] in your grade are talking about a movie they have just seen when you walk up to the group. The group sees you, stops talking, and turns away with their noses turned upward" (Galen & Underwood, 1997, p. 592). Social aggression has also been measured through laboratory observations of play sessions with a dyad of friends paired with a confederate, and questionnaires evaluating taped play sessions with peers demonstrating socially aggressive behaviors (Galen & Underwood, 1997). A similar construct, referred to as reputational aggression, has been assessed by peer nomination using the item, "Who does things to damage someone's social reputation— for instance, telling rumors about them, gossiping, and saying mean things behind their back?" (Prinstein & Cillessen, 2003, p. 318).

Summary of aggression measurement. Over the years, various subtypes of aggression have been measured in numerous ways, including laboratory procedures, naturalistic observation, archival research, self-report, peer nomination, teacher report,

and parent report. In general, inter-informant agreement on overt aggression assessments is higher than agreement among informants on less overt forms of aggression, such as relational aggression (Crick et al., 1999). Crick and colleagues suggest that by middle childhood, peers may provide better assessment of relational aggression than teachers or parents, particularly as children grow older and become increasingly adept at distinguishing between physical and relational aggression. While the ideal assessment of aggression in general (i.e., physical forms and alternative forms) may be through composites of multiple informants over differing contexts (Crick et al., 1999), there are several key advantages of self-report measures of aggression, in particular relational aggression in early adolescence.

Research has shown that adolescents are reasonably honest and reliable self-reporters of their own risk-taking behaviors (e.g., Oetting & Beauvais, 1990). Self-report data may provide an important perspective on individuals' externalizing behaviors, particularly when considering the more subtle acts of relational aggression (Sullivan et al., 2006). For example, certain contextual distinctions, such as distinctions between confrontational and non-confrontational acts of relational aggression may be difficult to assess by peer, teacher, or parent report, simply because such acts are by definition subtle and intended to disguise the aggressor's identity. Furthermore, some forms of non-confrontational relational aggression may not be perceived by others as having aggressive intent, and thus could only be reported on by the aggressors themselves. For example, some forms of gossiping may be perceived by others as simply "telling the truth" when in fact the aggressor had malicious intentions of relational or social harm. Not only may

self-report data prove particularly beneficial in the assessment of subtle forms of aggression, but peer nomination and peer ratings may represent a more limited sample of behavior because such reports are typically restricted to aggressive behavior occurring within the school context (Sullivan et al., 2006), potentially excluding valuable information about aggression exhibited in families, neighborhoods, and communities. Peer nominations also restrict students' reporting to only those peers who have been consented into the study, and typically limit reporting by school and class structures (i.e., students may only report on individuals in their class or grade); however, extensive relational aggression and victimization could theoretically occur outside of that restricted context. Finally, chronic victims and aggressors may be easily identified by peer nominations and ratings; however, aggressors who successfully manipulate their peers using subtle forms of aggression, or aggressors who only perpetrate infrequent acts of aggression may be harder to study via peer report.

Prevalence, Age, and Gender Differences in Aggression

Physical aggression. Reviews of aggression typically note that males are in general more physically aggressive than are females (Björkqvist, Österman, et al., 1992; Coie & Dodge, 1998; Eagly & Steffen, 1986; Tremblay, Hartup, & Archer, 2005), a finding that theorists have attributed to potential genetic, evolutionary, social, and cultural factors (Baron & Richardson, 1994). For example, comparisons of physical and relational aggression across the transition from elementary school to middle school revealed that males were more physically aggressive than were females in both third and sixth grades (Zimmer-Gembeck, Geiger, & Crick, 2005). A study of children ages four to

eighteen, at-risk for developing conduct problems, also revealed more frequent physical aggression among males than females (Tiet, Wasserman, & Loeber, 2001). Among samples of children in early and middle childhood, both boys and girls perceive physical aggression as more characteristic of males than females, and perceive relational aggression as more characteristic of females than males (Crick, Bigbee, & Howes, 1996; Giles & Heyman, 2005). Maccoby (2004, p.9) described males as "the more confrontational sex," citing evidence that they are more overtly and directly verbally aggressive than females. Research on aggressive and delinquent behavior among children who are classified on the life-course persistent pathway shows a male-to-female ratio of ten to one for these behaviors (Moffitt & Caspi, 2001). Some have theorized that the early research focus on males in the psychology literature resulted from the differences in boys' and girls' adjustment difficulties, namely that boys' problem behaviors are more often overtly disruptive and perceived as being more dangerous to themselves and others (e.g., physical aggression) (Crick & Zahn-Waxler, 2003). Reviews of the prevalence of psychopathology note that prior to about age four, children show no gender differences in physical aggression; however, during childhood and adolescence boys typically engaged in more physical aggression and violence (Crick & Zahn-Waxler, 2003). Only within the context of adolescent dating relationships have females tended to be more physically aggressive than males with their partners (Feiring, Deblinger, & Hoch-Espada, 2002; Foshee, 1996). Whereas females report greater concern than males that aggression may threaten their personal safety, males report less guilt and anxiety than females about being physically aggressive (Baron & Richardson, 1994). Further, studies have shown

that females tend to view aggression as expressive of their anger, whereas males may view aggression as instrumental in gaining social or material rewards (Baron & Richardson, 1994).

Some research has indicated that a developmental trend may exist, where physical aggression predominates at the youngest ages, direct verbal aggression then appears, and finally indirect aggression emerges, paralleling a developmental emergence of skills (physical, verbal, social) (Björkqvist, Österman, et al., 1992). Controlling aggressive impulses is a developmental task at which most children become increasingly adept by middle childhood and early adolescence, and those individuals who continue to exhibit physical aggression despite social sanctions against it may be viewed as "atypical" among their peer group (Bierman, 2004, p. 22). Thus, directing aggressive impulses into less direct methods may become increasingly important for social success as children mature, particularly in contexts in which social sanctions against aggression are prevalent. However, socioeconomic factors and ecological factors such as social, institutional, educational, and community-level characteristics may play important roles in the development and perpetuation of physical aggression and social-contextual perceptions of aggression and aggressors (Miller-Johnson et al., 2005). For example, research with African American and Latino youth living in urban areas characterized by high levels of violence points to the importance of considering environmental and contextual factors in the study of aggression (Gorman-Smith, Henry, & Tolan, 2004).

Indirect aggression. Feshbach (1969) was one of the first to demonstrate significantly higher indirect aggression scores (including ignoring, avoiding, refusal of

access or information, and excluding) for first grade girls, as compared with boys. Further work on indirect aggression expanded these findings to demonstrate similar gender differences in usage of indirect aggression among eighth grade girls and boys, where girls were more likely to rate newcomers less favorably and were more likely to display less friendly reactions to the newcomer, as compared with boys (Feshbach & Sones, 1971).

Consistent with the early studies of indirect aggression, higher levels of direct aggression among boys and higher levels of indirect aggression among girls have been found in more recent work (Björkqvist, Lagerspetz, et al., 1992; Lagerspetz et al., 1988;), consistent cross-culturally among adolescents in Finland (Finnish and Swedish speakers), Israel (secular and religious Israelis), Italy, and Poland, (Österman et al., 1998). These findings included one study with adults that showed males as more likely to use "rational-appearing" aggression than females and females as more likely to use social manipulation than males (Björkqvist et al., 1994, p.31). When adolescents are examined by aggressive clusters, aggressive boys tend to prefer direct (physical and verbal) aggression or use high levels of all kinds of aggression (physical, verbal, and indirect), whereas highly aggressive girls use predominantly indirect aggression (Salmivalli & Kaukiainen, 2004). Furthermore, the indirect strategies used were found to be better developed among 11- and 15-year-old girls than among 8-year-old girls (Björkqvist, Lagerspetz, et al., 1992), consistent with the theory that avoiding direct aggression is "one of the distinctive marks of social maturation, because it characterises adult social life as compared with that of children" (Lagerspetz et al., 1988, p. 413).

Among college students, females reported using more indirect than direct aggression, whereas males reported using similar levels of indirect and direct aggression. However, these researchers noted that while males reported more direct aggression than females, males and females did not differ in their reported levels of indirect aggression (Richardson & Green, 1999). Furthermore, across gender, respondents reported delivering direct aggression to males more frequently than females, but reported no difference in the delivery of indirect aggression to males or females (Richardson & Green, 1999).

One possible explanation for the gender differences shown in indirect aggression relates to the nature of typical social groups across genders. For example, boys typically form larger, more permeable friendship groups with less clear social distinctions and greater emphasis on competition. In contrast, girls maintain tighter groups, often with close dyads or triads. These female friendship groups may facilitate indirect aggression insofar as the relationship structures are more emotionally important and also more visible to perpetrators for easier manipulation (Bierman, 2004; Björkqvist, Lagerspetz et al., 1992; Lagerspetz et al., 1988). Although self exploration and social comparison are both common elements of adolescent relationships, girls' friendships tend to be more intimate, interdependent, empathic, and nurturing than boys' friendships, where greater emphasis is placed on companionship with an individual with whom they share common interests (Galambos, 2004). However, such intimate and interdependent contexts may provide greater awareness of personal information, which may then be used to drive gossip, rumors, and other perpetrations of indirect aggression.

Relational aggression. Research on gender differences in relational aggression is mixed, with some research finding girls to be significantly more relationally aggressive than boys (Crick, 1997; Crick & Grotpeter, 1995), other research finding no gender differences (Rys & Bear, 1997), and still other research showing boys to be more relationally aggressive than girls (Henington, Hughes, Cavell, & Thompson, 1998). However, studies on youth classified as physically aggressive reveal almost exclusively male aggressors, while studies on relationally aggressive groups reveal primarily female aggressors (Crick & Grotpeter, 1995; Rys & Bear, 1997). In fact, research shows that focusing exclusively on physical aggression to the exclusion of relational aggression fails to identify over 80 percent of those girls who would be classified as aggressive if relational aggression were considered (Crick & Zahn-Waxler, 2003). Furthermore, when boys and girls in early and middle childhood are asked about the types of aggression they perceive to be gender normative, they report the perception that girls are more relationally aggressive and boys are more physically aggressive (Crick et al., 1996; Giles & Heyman, 2005).

As early as preschool, researchers have noted significantly more relationally aggressive behavior and less overtly aggressive behavior among girls in comparison to boys (Crick, Casas, & Mosher, 1997). Among children ages nine to twelve, relational aggression was considered the most typical angry behavior for girls' interactions, in contrast to physical aggression for boys. Also, relational and verbal aggression were considered the most frequently occurring harmful behaviors for girls, in contrast to physical and verbal aggression for boys (Crick et al., 1996). In a high school sample,

boys and girls reported comparable levels of relational aggression; however, boys reported approximately equivalent use of overt and relational aggression, whereas girls reported using relational aggression more than overt aggression (Prinstein et al., 2001). Among mid-adolescents, females report using more relational aggression than males; however, by late adolescence, self-reported relational aggression did not differ by gender (Crick et al., 1999). Among some college samples, in addition to engaging in more overt aggression, men also report engaging in more relational aggression than women (Storch et al., 2004). Also among college students (ages 18-30), males and females have reported engaging in comparable levels of relational aggression toward romantic partners (Linder, Crick, & Collins, 2002). Thus, although there may be some trends in the literature that highlight the predominant use of relationally aggressive methods among younger girls, shifting to more comparable levels of relational aggression among males and females by emerging adulthood, in general, the mixed findings in the literature suggest that gender differences in relational aggression need further research.

Social aggression. Gender differences in social aggression have been shown to emerge during late childhood and early adolescence, a finding that has been attributed to both biological development (greater physical strength of boys after puberty) and social role expectations (greater social sanctions against physically aggressive females) (Cairns, Cairns, Neckerman, Ferguson et al., 1989; Xie et al., 2005). For example, among fourth and seventh graders, no significant differences were found in frequency of physical and social aggression; however, among tenth graders, females reported greater social aggression than males (Galen & Underwood, 1997).

Social aggression has been shown to be more commonly used by girls when aggressing against girls, while boys more typically aggress against other boys via physical aggression (Xie, Cairns, et al., 2002). Research findings show that girls perceive social aggression and physical aggression as equally hurtful, and they perceive social aggression as being more hurtful than boys do, while boys perceive physical aggression as more hurtful than social aggression (Galen & Underwood, 1997).

Summary of age and gender differences. Although studies have consistently shown higher rates of physical aggression among males than females, and greater tendency to use indirect forms of aggression among females, overall aggression as a characteristic appears to be relatively stable across childhood and adolescence for both genders (Coie & Dodge, 1998). In fact, research has shown stability of aggression across childhood and into adulthood as rivaling the stability of intelligence, perhaps particularly for males (Huesmann et al., 1984). However, although research prior to the 1990's generally revealed that boys were more aggressive than were girls, some of the more recent research has shown a decline in these gender differences. This shift has been hypothesized by some as indicating changing cultural milieu emphasizing dominance, power, strength, and competition for females (Viemerö, 1992).

Some evidence suggests that relational aggression may emerge in adolescence as a safer alternative to physical aggression because of increased risk of serious injury or legal involvement that may result from age-related increases in physical strength and access to weapons (Cairns, Cairns, Neckerman, Ferguson et al., 1989; Prinstein et al., 2001). Similarly, avoiding direct aggression has been described as "one of the distinctive

marks of social maturation, because it characterises adult social life as compared with that of children" (Lagerspetz et al., 1988, p. 413). Cognitive, social, and emotional developmental changes characteristic of adolescence may influence a shift toward increased use of indirect, relational, and social aggression at this age. Developmental factors contributing to this shift in aggression around adolescence may include increased emphasis on intimacy within friendships, often achieved through gossip, social comparison, and self-disclosure (Bierman, 2004; Gottman & Mettetal, 1986; Yoon et al., 2004), increased cognitive capacity for planning, abstract thinking, and cognitive relativism (Byrnes, 2003), and greater linguistic facility with sarcasm, irony, and innuendo (Creusere, 1999).

Whereas indirect aggression has consistently been shown to be more typical of females than males, research on social and relational aggression has shown mixed findings in terms of gender differences. Although further research is needed, there is some indication of a developmental trend in relational aggression, where younger females engage in more relational aggression than their male counterparts, but by late adolescence or emerging adulthood, males and females engage in comparable levels of relational aggression. Some research has shown the emergence of gender differences in social aggression around the time of puberty. Further, relational aggression has been observed in children as young as three, while indirect aggression has been argued to be non-characteristic of children younger than eight. Those discrepancies may be attributable to the inclusion of both confrontational and non-confrontational mechanisms of action within the constructs of social and relational aggression, as opposed to the more

predominant non-confrontational emphasis of indirect aggression (Björkqvist,

Lagerspetz, et al., 1992; Crick et al., 1999; Xie et al., 2005). For example, insofar as

confrontational and non-confrontational mechanisms of action may be particularly

relevant in age and gender distinctions, the inclusion of items with varied mechanisms of

action on scales of relational and social aggression may contribute to the ambiguity in the

literature on age and gender differences in these non-physical forms of aggression.

Correlates of Aggression

Maladjustment. Extensive research on physical aggression in childhood and

adolescence has generally demonstrated robust predictions of future maladjustment,

including drug use, delinquency, school dropout, teen parenthood, criminal behavior,

spousal abuse, traffic violations, and further physical aggression (e.g., Cairns, Cairns, &

Neckerman, 1989; Farrell et al., 2005; Farrington, 1986; Huesmann et al., 1984; Xie,

Cairns, & Cairns, 2001). Studies have shown that a continuity of life-course problem

behaviors persisting from childhood to adolescence and emerging adulthood is

particularly acute among a sub-group of boys who were physically aggressive as

children, with problem behaviors exhibited across many different life-domains (e.g.,

mental health, substance dependence, financial and work-domains, relationships, violent

and non-violent legal violations, etc.) (Broidy et al., 2003; Moffitt et al., 2002).

Longitudinally, aggression levels at the beginning of middle school have been

shown to predict changes in the frequency of substance use and delinquency through the

beginning of the eighth grade; however, reciprocally, changes in aggression were not

predicted by earlier levels of drug use and delinquency, thus supporting the "central role

of aggression in the emergence of other problem behaviors" (Farrell et al., 2005, p. 197).

Other longitudinal work has shown that childhood aggression impacts young adult

substance use and female deviancy, and that this relation is mediated by adolescent

substance use and delinquency (Brook, Whiteman, Finch, & Cohen, 1996). Also, one

model has specifically shown low executive functioning and temperament in late

childhood to be associated with drug use in adolescence, mediated by both aggression

and the association with delinquent peers in early adolescence (Giancola & Parker, 2001).

Another study has shown that, for boys, aggression in early adolescence predicts later

increases in alcohol use and alcohol-related aggression; however, early alcohol use did

not reciprocally predict later aggression (White, Brick, & Hansell, 1993). Particularly for

boys, chronic childhood physical aggression has been associated with elevated risk for

adolescent violent and nonviolent delinquent behavior (Broidy et al., 2003).

Although studies have shown negative outcomes for aggressive adolescents

including peer rejection (Barnow, Lucht, & Freyberger, 2005), one study of fifteen and

sixteen-year-olds found that when direct aggression was held constant, indirect

aggression did not account for a significant percentage of the variance in peer rejection,

and in fact, contributed to social acceptance by peers (Salmivalli, Kaukiainen, &

Lagerspetz, 2000). Additionally, in studies of fourth and seventh graders, socially

aggressive youth have been shown to have high peer network centrality (Xie, Cairns, et

al., 2002; Xie, Swift, Cairns, & Cairns, 2002). These studies on social acceptance and

network centrality among social aggressors highlight the necessity of social structures

that facilitate manipulation by indirect social attacks (Björkqvist, Lagerspetz, et al.,

1992). However, they may also point to the normative nature of some of the less confrontational methods of aggression, further indicated by the absence of reliable links between non-confrontational social aggression and concurrent or future maladjustment (Xie, Cairns, et al., 2002).

In contrast to studies of indirect and social aggression, studies of relational aggression have demonstrated concurrent and future social adjustment difficulties for relationally aggressive children, such as peer rejection, loneliness, depression, isolation, and high levels of exclusivity/jealousy within friendships (Crick, 1996; Crick & Grotpeter, 1995; Grotpeter & Crick, 1996). However, there is some evidence that the predictive power for future social maladjustment may be stronger for girls than boys (Crick, 1996). Further, children who engage in gender non-normative aggression (i.e., overtly aggressive girls and relationally aggressive boys) show greater social-psychological maladjustment than their peers who engage in gender normative aggression or are not aggressive. However, type of maladjustment is only associated with type of aggression and not with gender, with relationally aggressive youth displaying more internalizing and externalizing difficulties and overtly aggressive youth displaying more externalizing and self-restraint difficulties (Crick, 1997). Additional research has shown that when groups of aggressors are delineated (i.e., relational only, overt only, both relational and overt, and neither relational nor overt aggressors), high school boys identified as either relational aggressors or as both relational and overt aggressors demonstrated significantly greater loneliness than high school girls identified into these groups (Prinstein et al., 2001).

Among adolescents, relational aggression has been associated with aggressive and non-aggressive delinquency, some features of antisocial personality disorder (stimulus seeking and egocentricity), and for females only, engagement in antisocial behaviors such as destruction of property, lying, and misbehavior in school (Crick et al., 1999). After controlling for physical aggression, relational aggression has been associated with future social withdrawal and anxiety/depression among elementary school boys and girls, and with future delinquency among boys (Crick et al., 2006). Among females, relational aggression has also been linked to affective instability, negative relationships, self-harming behavior, and bulimic eating patterns (Crick et al., 1999). After controlling for overt aggression, relational aggression has been associated with externalizing behavior for high school girls (Prinstein et al., 2001), peer rejection for elementary and middle school girls (Rys & Bear, 1997), and sensation-seeking and alcohol use in middle school girls (Grimes et al., 2005). Cross-culturally, relational aggression has been linked to peer rejection among a sample of elementary school-aged Italian children (Tomada & Schneider, 1997).

Among undergraduate college students, relational aggression is concurrently associated with social anxiety, loneliness, depression, and substance use problems for females; however relational aggression was not associated with any of these variables for males (Storch et al., 2004). Among a sample of intercollegiate athletes, after controlling for gender and age, higher levels of relational aggression predicted increased peer rejection; and for female athletes, relational aggression was positively associated with alcohol problems and negatively associated with pro-social behavior (Storch et al., 2003).

Social intelligence. Whereas empathy has been conceptualized as "a vicarious emotional response of a perceiver to the emotional experience of a perceived object," (Feshbach & Feshbach, 1969, p. 102), social intelligence is comprised of "cleverness in analyzing the social behavior of others," recognizing "motives and cognitive traps of one's own," and the capacity to produce "adequate behavior for the purpose of achieving desired social goals" (Björkqvist, Österman, & Kaukiainen, 2000, p. 192). Thus, to experience the affective component of empathy requires the social cognition component of social intelligence, whereas the reverse is not necessary.

Because the use of less overt forms of aggression (i.e., indirect, relational, and social) requires social manipulation to varying degrees, social intelligence, but not empathy, becomes an asset for the successful implementation of aggressive strategies. Therefore, whereas research indicates that empathy mitigates or inhibits aggression (Miller & Eisenberg, 1988) and is positively correlated with peaceful conflict resolution, the relation between social intelligence and aggression is strongest for indirect forms and weakest for physical forms (Björkqvist et al., 2000). In fact, controlling for empathy and other aggression types (i.e., indirect, verbal, or physical), physical aggression was not correlated with social intelligence; however, indirect aggression was significantly correlated with social intelligence (Kaukiainen et al., 1999). Furthermore, although validation work with the Richardson Conflict Response Questionnaire did not directly measure social intelligence, results did demonstrate a significant semi-partial correlation (controlling for the shared variance between indirect and direct aggression) between Machiavellianism, or the ability to manipulate others for personal gain, and indirect

aggression. However, that trait was also significantly correlated with direct aggression (Richardson & Green, 2003). Thus, whereas only limited work has examined the association between social intelligence and aggression, some evidence supports the relation between social-cognitive sophistication and the use of less direct forms of aggression.

Although relational aggression has been observed among preschoolers as young as three years old, these young children are socially and cognitively immature, and thus manifest relational aggression in simpler, less sophisticated, and more obvious ways than older children, adolescents, and adults (e.g., saying, "I won't be your friend anymore unless you do what I want" versus convincing other children to exclude a child from an activity) (Crick et al., 1999). Young children also demonstrate their relative immaturity in their tendency to use relational aggression in response to immediate problems, as opposed to older individuals who may delay their aggressive response or aggress in response to a past transgression (Crick et al., 1999). Thus, as children grow and develop socially and cognitively, their use of relational aggression may progressively become more sophisticated and less verbally-confrontational. Because social intelligence involves cognitive perspective-taking skills to analyze social behaviors and motives (Björkqvist et al., 2000), the development of abstract reasoning, metacognitive ability, and cognitive relativism during adolescence (Byrnes, 2003) may facilitate the sophistication of relationally aggressive behaviors via less confrontational and more socially intelligent means. In this way, individuals with higher levels of social intelligence may use more non-confrontational strategies, while individuals with lower levels of social intelligence

may use more directly confrontational strategies, paralleling the cognitive development occurring in the adolescent context.

Structure of Aggression

Aggression has been conceptualized in literally hundreds of different ways in the psychological literature (Harré & Lamb, 1986). However, the body of literature on various subtypes of aggression has progressed without a broad conceptual or organizational framework to unite various researchers' definitions of non-physical forms of aggression (Anderson & Bushman, 2002). Research on indirect, relational, and social aggression has encompassed definitions involving directly confrontational acts and circuitous, non-confrontational acts as mechanisms of action and physical, relational, and social injury as vehicles of harm. Some researchers have proposed definitions of aggression where the mechanism of action is the essential definitional factor without regard to the vehicle of harm (e.g., Buss 1961). For example, Richardson & Green (2003) conceptualized non-confrontational mechanisms of action that were delivered via either physical or relational vehicles of harm. In contrast, other researchers have defined aggression using the vehicle of harm as the sole definitional characteristic without restricting the mechanisms of action used. As an example, Crick and Grotpeter (1995) accounted for a relational vehicle of harm achieved via either confrontational or non-confrontational mechanisms. Still others have intertwined specific mechanisms of action with specific vehicles of harm, such as accounting for non-confrontational mechanisms of delivering social harm (Xie et al., 2001).

Because no studies have directly examined the structure of physical and relational aggression via competing models delineated based on mechanism of action and vehicle of harm, either of these components may, in fact, represent the essential definitional characteristic that best captures these forms of aggression. For example, physical aggression and confrontational relational aggression may be linked by their confrontational nature, and thus be distinguished from non-confrontational relational aggression based on the mechanism of action. Alternatively, confrontational and non-confrontational relational aggression may be linked by their harm to relationships, and distinguished from physical aggression based on the vehicle of harm. The lack of attention to the dimensions of mechanism of action and vehicle of harm in the existing literature highlights the need for direct evaluation of the structure of aggression via a measure designed to assess these specific facets. If these respective categorizations of aggression prove to be better predictors of maladjustment or negative psychosocial outcomes than current aggression categorizations, then this overarching framework for aggression subtyping may offer benefits for the tailoring of delivery of prevention and intervention programming.

Statement of the Problem

Aggression among youth is a serious public health concern, with the potential to exact extensive damage at both the personal and societal level; however, research on aggression has historically been limited to a focus on direct physical and verbal forms, with only recent attention given to other forms of aggression (Björkqvist, Österman, et al., 1992). Research on aggression has expanded from its early focus on physical aggression to examine less direct forms, including indirect, relational, and social aggression. However, with this expanded focus, multiple operationalizations of these non-physical forms of aggression have emerged, along with considerable debate regarding the best label and most relevant conceptualizations to be encompassed within this construct (Putallaz et al., 2004). Despite common references to these behaviors as being covert, alternative, indirect, subtle, or hidden forms of aggression (Galambos, 2004; Simmons, 2002; Underwood, 2003), they in fact do not uniformly reference acts that are necessarily non-confrontational. Yet this emerging literature base has not systematically explored these forms of aggression based on the mechanism of action employed (i.e., confrontational mechanisms versus non-confrontational mechanisms) and the vehicle of harm executed (i.e., physical harm versus relational or social harm). Direct examination of these two dimensions may generate useful new directions in aggression and violence prevention research by uniting definitions of aggression subtypes that are currently divided in this field. Further, improved conceptualization of aggression may better facilitate prediction of associated maladjustment, which in turn would facilitate

56

improved targeting of prevention and intervention efforts toward those subtypes of aggression that are most detrimental to youth's developmental outcomes.

Adolescence is a particularly relevant time for studying aggression for several reasons. First, adolescence is a time in development when peers and social groups take on increased importance (Yoon et al., 2004), which may increase the perceived salience of indirect relational and social attacks at this age. In addition, cognitive gains in abstract reasoning, development of metacognitive ability, shifts from cognitive objectivism toward increasing relativism, increased perspective-taking abilities, and greater capability for using sarcasm, irony, and innuendo all unfold during adolescence (Byrnes, 2003; Creusere, 1999). These facets of cognitive development provide the cognitive capacity for orchestrating more covert manipulation than during middle childhood. Also, the emotional development characteristic of adolescence, including the novel experience of mixed emotions, the separation of emotional experience from emotional display, and the increased emotions-based introspection and reflection on others (Rosenblum & Lewis, 2003), provides an emotional setting in which non-confrontational attacks may be exhibited. Developing cognitive abilities, combined with social and emotional development during adolescence, provides an environment in which increased intimacy and self-disclosure may foster interdependence between peers. Unfortunately, this may also provide the context for damaging relational attacks through indirect aggressive tactics. Thus, these developmental factors make adolescence a particularly important time for the study of indirect, relational, and social forms of aggression.

Because indirect aggressive strategies have been found to be better developed among adolescents as compared with children (Björkqvist, Lagerspetz, et al., 1992), this developmental context may be an important time for understanding the transition from childhood methods of aggressing to more adult-like forms of aggressing. For example, some theories pose that the ability to avoid direct aggression is "one of the distinctive marks of social maturation, because it characterises adult social life as compared with that of children" (Lagerspetz et al., 1988, p. 413). If such avoidance of direct aggression is in fact characteristic of adaptive developmental maturation, the current study may help to clarify apparently discrepant findings in the existing literature, such as current research with inconclusive results on age and gender differences in the use of indirect, relational, and social forms of aggression (Björkqvist, Lagerspetz, et al., 1992; Crick & Grotpeter, 1995; Galen & Underwood, 1997; Henington et al., 1998; Lagerspetz et al., 1988; Rys & Bear, 1997). The current literature also reveals discrepant findings regarding normative versus maladaptive outcomes associated with relational and social forms of aggression (Crick, 1996; Crick & Grotpeter, 1995; Grotpeter & Crick, 1996; Prinstein et al., 2001; Salmivalli et al., 2000; Xie, Swift, et al., 2002). However, such discrepancies may be attributable to the predominant consideration of the dimension of vehicle of harm in definitions of aggression subtypes without adequate examination of the dimension of mechanism of action. In other words, inclusion of both confrontational and non-confrontational mechanisms of action within various definitions of aggression may have contributed to the current ambiguity in comparing different researchers' findings. This study addressed these limitations in the literature by developing a measure of relational

aggression that includes subscales assessing confrontational and non-confrontational forms of behavior and by evaluating the structure of physical and relational aggression based on the dimensions of mechanism of action and vehicle of harm, testing four competing factor models via confirmatory factor analyses, and further examining relations between predicted correlates of aggression and the best-fitting factor model.

Hypotheses

Four competing factor models were evaluated using confirmatory factor analysis

to examine the structure of aggression based on the Confrontational and Non-

Confrontational Aggression Scale (CANAS). The first model (Model 1) is a single-factor

model in which all relational and physical aggression items represent a single underlying

aggression factor. Thus, Model 1 tested the hypothesis that relational and physical

aggression reflect a single dimension of aggression with all items loading onto a single

aggression factor (see Figure 1).
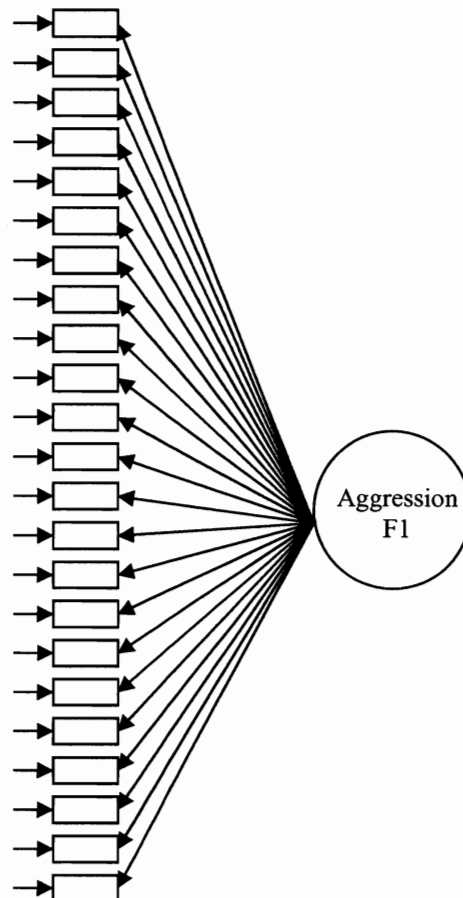
Figure 1. Model 1 examined the degree to which all types of physical and relational
aggression reflect a single, homogenous dimension of aggression.

Models 2 and 3 specifically tested the structure of aggression based on the defining dimensions of vehicle of harm and mechanism of action. Based on a review of the existing literature, the vehicle of harm and mechanism of action were hypothesized to represent key dimensions for differentiating subtypes of aggression (i.e., relational and physical or confrontational and non-confrontational aggression). However, because no known studies to date have examined these methods for defining aggression subtypes, and because various researchers have used different components of the vehicle of harm and mechanism of action dimensions across the existing body of literature, no a priori hypotheses are presented regarding the model of best fit based on these two dimensions for boys and girls.

Model 2 represents items loading on two correlated latent variables, physical aggression and relational aggression. Model 2 reflects the vehicle of harm hypothesis, wherein aggression is distinguished based on the type of harm enacted against a victim (i.e., physical harm versus harm to a relationship). In contrast, Model 3 represents items loading on the two correlated latent variables of confrontational aggression and non-confrontational aggression. Model 3 represents the mechanism of action hypothesis, wherein aggression is distinguished based on the mechanism by which the harm to the victim is enacted (i.e., through direct confrontation or through non-confrontational means), without regard for the vehicle by which the aggressor harms the victim (i.e., physical harm versus harm to a relationship). Figures 2 and 3 reflect these competing hypotheses for Models 2 and 3, respectively.
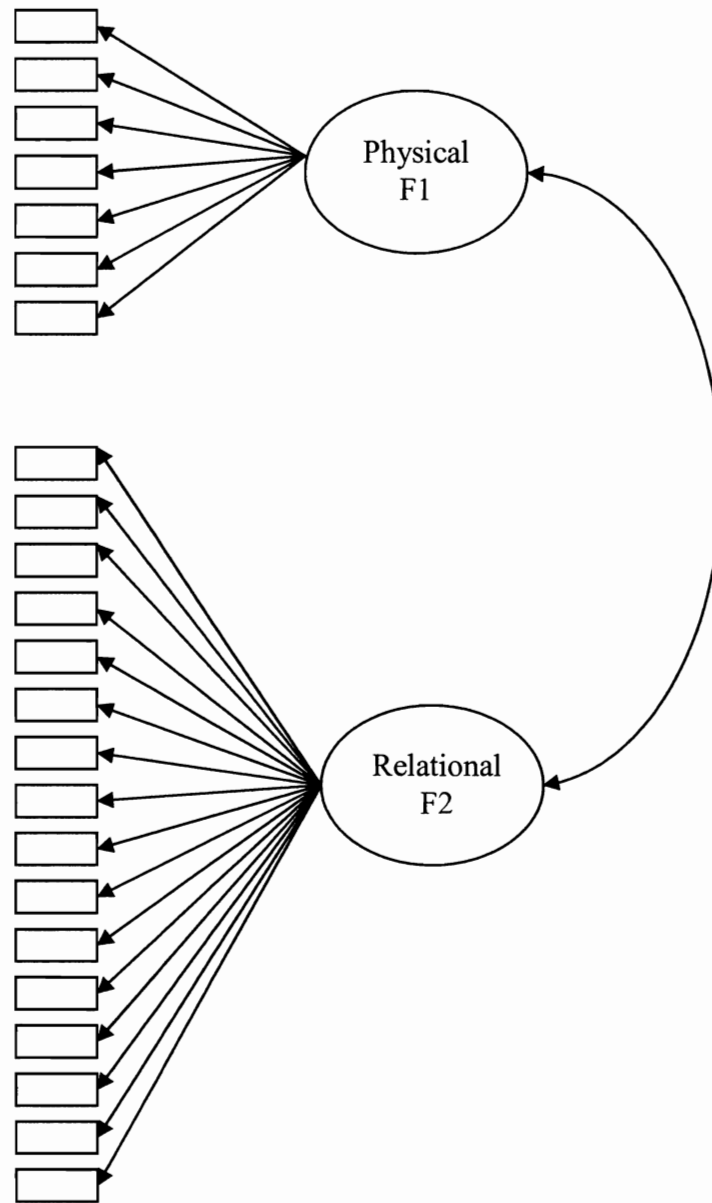
Figure 2. Model 2 examined the vehicle of harm model, with items loading onto the two correlated latent variables of physical aggression and relational aggression.
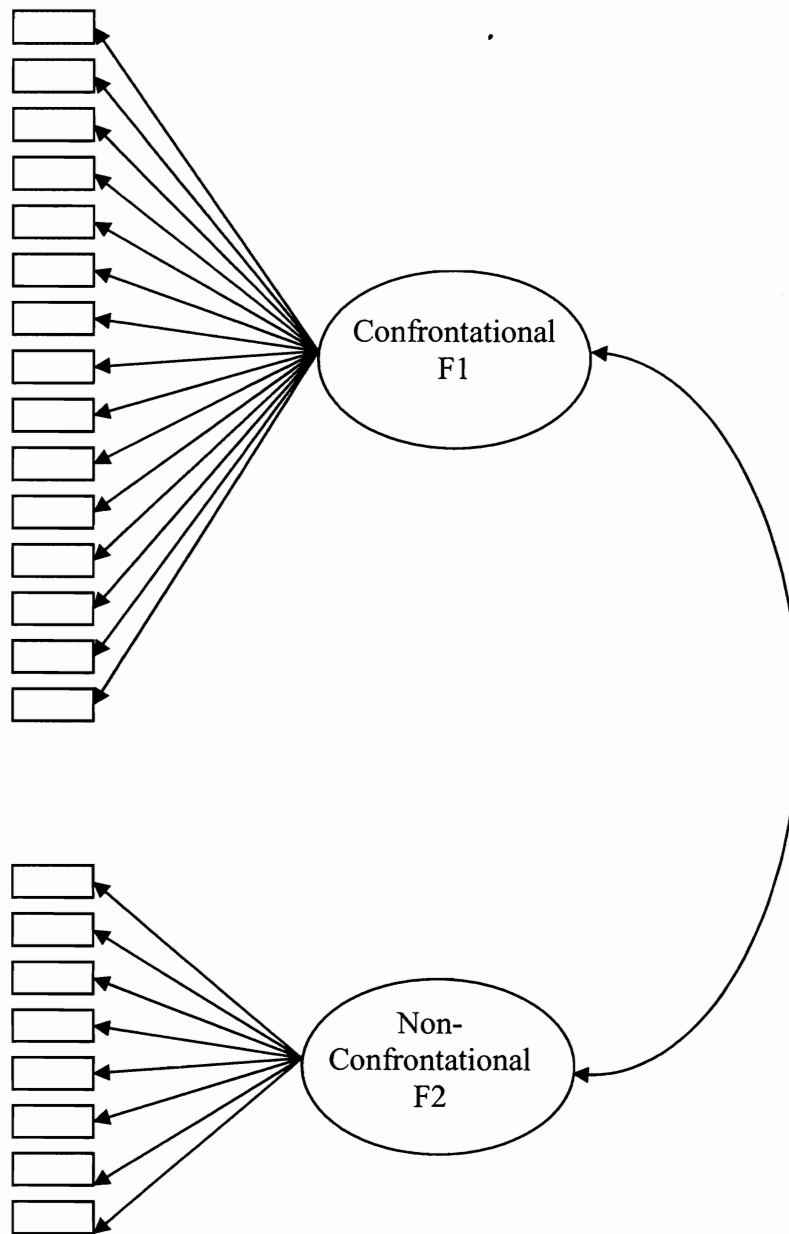
Figure 3. Model 3 examined the mechanism of action model, with items loading onto the two correlated latent variables of confrontational aggression and non-confrontational aggression.

Model 4 is a three-factor model in which the three factors representing aggression (physical, confrontational relational, and non-confrontational relational) represent distinct but correlated factors. Model 4 tested the hypothesis that these three subtypes of aggression are distinct but related factors (see Figure 4).
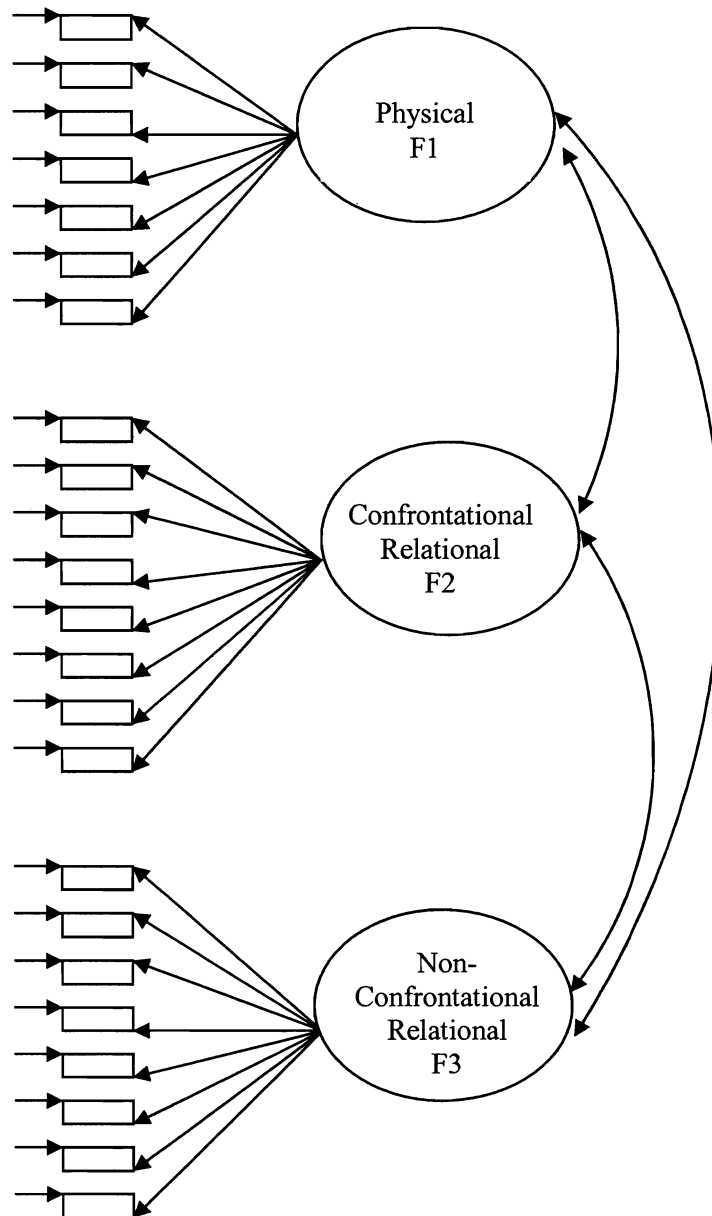
Figure 4. Model 4 examined the extent to which physical, confrontational relational, and non-confrontational relational aggression represent distinct but correlated factors.

All models in this study were evaluated separately for boys and girls. It was anticipated that either Model 2, representing the structure of aggression based on the vehicle of harm (i.e., physical or relational), or Model 3, representing the structure of aggression based on the mechanism of action (i.e., confrontational or non-confrontational) would provide the best fit for boys and girls. It was predicted that boys would report higher frequencies of physical or confrontational aggression, whereas girls would report higher frequencies of relational or non-confrontational aggression; however, no a priori hypotheses were presented regarding gender differences in models of best fit.

Once the model of best fit for boys and girls was determined, a latent variable model was run to examine the relations between aggression subtypes and predicted correlates, including peer deviancy, delinquency, drug use, and social intelligence. Because the structure of aggression was determined to be different for boys and girls, the latent variable model analyses were run separately by gender. Due to the emergent design of this measurement model evaluation, specific hypotheses were not offered a priori. However, it was generally hypothesized that more directly confrontational forms of aggression (e.g., physical aggression, confrontational relational aggression, confrontational aggression) would be associated with higher levels of maladjustment (e.g., peer deviancy, delinquency, drug use), whereas less directly confrontational forms of aggression (e.g., relational aggression, non-confrontational relational aggression) would be associated with higher levels of social intelligence.

Method

Participants

Participants were 280 fifth through eleventh grade youth (n=131 males, 149 females), ages eleven through seventeen, sampled from the second-year wave of an ongoing longitudinal study of violence, substance use, stress, and coping in an urban setting (Kliewer, 2003). The majority (over 90%) identified themselves as African American or Black, with a limited representation of individuals identifying themselves as Caucasian, American Indian, Hispanic or Latino, and Asian. The participants were recruited from urban, predominantly lower SES neighborhoods (median household income around $401 to $500 per week). The majority of youth reported living with their biological mother all or most of the time (87%), and 42% also reported living with their biological father, stepfather, or adoptive father. 15% of youth reported that their grandparents lived with them all or most of the time, and approximately 20% of youth reported that other adults lived in their home all or most of the time.

Procedures

Data were obtained from students and their primary female caregivers sampled from an ongoing longitudinal study of violence, substance abuse, stress, and coping in an urban setting (Kliewer, 2003). The full research protocol was reviewed and approved by the Virginia Commonwealth University Institutional Review Board (IRB). Families were recruited through local community agencies such as church groups and Boys and Girls Clubs, as well as through flyers posted in communities and door to door recruitment. Trained recruiters and interviewers thoroughly reviewed the parental consent and youth

assent forms with families, answering all questions before obtaining informed consent and assent. Research staff explained the general purpose of the study, assured participants that their responses would be kept confidential, reminded participants that they could discontinue participation at any time without penalty, and advised participants that they did not have to answer any questions that they did not want to answer. Caregiver and youth measures were then administered individually by trained research interviewers, typically in separate rooms of the family's home or occasionally in another preferred community location or relative's home.

Measures

      Confrontational and Non-Confrontational Aggression Scale. The Confrontational and Non-Confrontational Aggression Scale (CANAS) is a self-report measure undergoing development and validation in this study. The goal of the scale development is to identify the structure of aggression subtypes based on the mechanism of action used (confrontational or non-confrontational methods) and the vehicle of harm used (physical or relational harm to the victim). Whereas physical forms of aggression are assumed by definition to be confrontational in nature (i.e., the aggressor and victim must have contact with each other for a physical attack or direct threat of physical attack to occur), relational aggression is broken down in the CANAS to include sub-components of confrontational relational aggression and non-confrontational relational aggression. The physical aggression scale was taken from the Problem Behavior Frequency Scale (PBFS, Farrell, et al., 2000) and consists of seven items, including "Hit or slapped another kid,"

"Threatened to hit or physically harm another kid," and "Shoved or pushed another kid." The alpha coefficient for this subscale was .79.

Items on the confrontational and non-confrontational relational aggression subscales were generated following an extensive review of existing measures of indirect, relational, and social aggression. Relevant aspects of the definitions of these various forms of aggression were aggregated from across this body of literature. Items from existing measures were grouped based on these definitions and assigned to various domains, such as marginalization from the group, information dissemination, relationship structure manipulation, betrayals of trust, and negative body expressions or gestures. Items were then revised or created to represent these domains on both confrontational and non-confrontational mechanisms of action. All items were reviewed and edited by three separate experts in the field, generating the final item pool for the confrontational and non-confrontational relational aggression subscales (see Appendix A).

The confrontational relational aggression scale consists of eight items, including "Told another kid that they couldn't join your group when they asked to," "Told another kid you wouldn't like them unless they did what you wanted them to do," and "Started whispering about another kid and pointing at them when they walked by." The non-confrontational relational aggression scale consists of eight items, including "Spread a false rumor about someone," "Said things about a kid behind their back to hurt their reputation with other kids," and "Told a kid something untrue about their friend to secretly harm their friendship." For all items, students indicated how frequently they engaged in the behavior in the past 30 days using a six-point scale (0: never, 1: 1-2 times,

2: 3-5 times, 3: 6-9 times, 4: 10-19 times, 5: 20 or more times). The alpha coefficients for the Confrontational Relational Aggression and Non-Confrontational Relational Aggression subscales were .77 and .84, respectively.

Delinquency. Youth delinquency was measured via self-report using the Delinquency subscale (see Appendix B) of the Problem Behavior Frequency Scales (PBFS, Farrell, et al., 2000). This measure includes eight items designed to measure frequency of adolescent delinquency over the past 30 days using a six-point scale (0: never, 1: 1-2 times, 2: 3-5 times, 3: 6-9 times, 4: 10-19 times, 5: 20 or more times). Examples of items include, "Stolen something from another student," "Skipped school," and "Damaged school or other property that did not belong to you." The alpha for this subscale was .75, with one item ("Been on suspension") indicated for deletion. After deletion of that item, the alpha for the subscale rose to .79.

Association with deviant peers. Youth association with deviant peers was measured by self-report using items from the Peer Deviancy scale (see Appendix C) from the Multisite Violence Prevention Project, adapted from the "Things That My Friends Have Done" scale used by the Fast Track project by the Conduct Problems Prevention Research Group (Multisite Violence Prevention Project, 2004). This measure includes fifteen items designed to measure the extent of peer delinquency, violence, and substance use among the adolescent's friends during the previous year using a five-point scale (0: none of them, 1: few of them, 2: half of them, 3: most of them, 4: all of them). Examples of items include, during the past year, how many of your friends have "purposely damaged or destroyed property that did not belong to them," "used a weapon, force, or

strongarm methods to get money or things from people," and "used alcohol." The alpha for the peer deviancy scale was .90.

Drug use. Youth substance use was measured via self-report on the Drug Use subscale (see Appendix D) of the Problem Behavior Frequency Scales (PBFS; Farrell et al., 2000). This measure includes six items designed to measure frequency of adolescent tobacco, alcohol, and drug use over the past 30 days using a six-point scale (0: never, 1: 1-2 times, 2: 3-5 times, 3: 6-9 times, 4: 10-19 times, 5: 20 or more times). The scale includes items regarding the frequency of using cigarettes, beer, wine, liquor, marijuana, and the frequency of having been drunk. The alpha for the drug use subscale was .85.

Social intelligence. The Peer-Estimated Social Intelligence Scale (PESI; Kaukiainen, Björkqvist, Österman, Lagerspetz, & Forsblom, 1995) was revised into a self-report measure for the current study. This measure includes ten items designed to measure social intelligence, including person perception, social flexibility, and accomplishment of one's own social goals and behavioral outcomes, and is measured on a five-point scale (0: never, 1: seldom, 2: occasionally, 3: often, 4: very often) (Kaukiainen et al., 1999). Examples of items on the currently revised version (see Appendix E) include, "You notice easily if others lie," "You are able to guess the feelings of others, even when they don't want to show them," and "You are able to talk others into taking your side." Cronbach's alpha for the peer-estimated version of this scale was .95 in a study with Finnish schoolchildren (Kaukiainen et al., 1999), and was .77 in this sample in the self-report form.

Data Analysis

Descriptive data, including means, standard deviations, ranges, and bivariate correlations were calculated for all study variables, both separately by gender and also for the total sample. Gender differences in frequencies of aggression and its correlates (delinquency, association with deviant peers, substance use, and social intelligence) were examined. Structural equation modeling (SEM) was used to test the competing factor structures of aggression using version 3 of Mplus (Muthen & Muthen, 1998). Because of the typically low reliability, low intercorrelations, and restricted correlations with other variables inherent in the use of individual items, parcels or subsets of items were constructed by random item assignment, consistent with Kishton and Widaman's (1994) suggested approach. However, because the assumptions for parcels were not met, ultimately competing models of the Confrontational and Non-Confrontational Aggression Scale (CANAS) were evaluated using individual items. Following these analyses, an exploratory factor analysis was completed.

The following four competing models were tested: (*a*) Model 1 evaluating whether all 23 items of the CANAS represent a single underlying aggression factor (see Figure 1), (*b*) Model 2 evaluating the fit of the vehicle of harm model, with items loading on two correlated latent variables, physical aggression and relational aggression (see Figure 2), (*c*) Model 3 evaluating the fit of the mechanism of action model, with items loading on the two correlated latent variables of confrontational aggression and non-confrontational aggression (see Figure 3), and (*d*) Model 4 evaluating whether physical

aggression, non-confrontational relational aggression, and confrontational relational aggression represent distinct but correlated factors (see Figure 4).

Each competing model was run separately for boys and girls to identify the best fitting model for each gender. This approach allowed for an in-depth analysis of the similarities and differences in the fit of competing models by gender. Following the identification of the best-fitting models, a latent variable model was examined, including predicted correlates of the various subtypes of aggression. This latent variable model analysis allowed for examination of the best fitting model of aggression in relation to important associated indicators of youth functioning, offering an initial examination of the validity of the CANAS by examining the differential correlations between the subtypes of aggression and child-reported delinquency, association with deviant peers, drug use, and social intelligence.

The comparative fit index (CFI), root mean square error approximation (RMSEA), Bayesian Information Criterion (BIC), and chi-square difference test were used as goodness of fit indices to evaluate the models, with CFI's above .90 (Bentler, 1992) and RMSEA's below 0.08 (Browne & Cudeck, 1993) traditionally considered to be indices of acceptable fit. BIC differences between models of 5 indicate reasonable evidence for differences between models, and differences of 10 or more indicate more conclusive evidence for differences between models (Raftery, 1993). Chi-square difference tests between competing models were also utilized, with lower chi-square values favored when the difference between models is significant.

Results

Descriptive Statistics

Descriptive data for all study variables were examined for the total sample and then examined separately by gender. Percentages of youth who reported using physical, confrontational relational, or non-confrontational relational aggression in the previous 30 days are displayed in Table 3. Thirty-day prevalence rates for the total sample ranged from 4.7% to 52.7%, and were generally higher for physical and confrontational relational aggression than for non-confrontational relational aggression.

For physical aggression, approximately half of the students reported having shoved or pushed another kid in the previous 30 days. Over one-third of students reported having thrown something at someone to hurt them, been in a fight in which someone was hit, and hit or slapped another kid; and over one-fourth of students reported having threatened to hit or physically harm another kid in the previous 30 days. There were no significant gender differences in prevalence of physical aggression among boys and girls.

For confrontational relational aggression, in the past 30 days around half of the students reported having given mean looks to other students and rolled their eyes and glared at other students. Approximately one-third of students reported ignoring a kid when they approached their group and whispering and pointing at a kid when they walked by. Nearly one-fourth of students had told another kid that they couldn't join their group when they asked to. A significantly higher percentage of girls than boys reported whispering about another kid and pointing at them when they walked by, giving mean looks to another student, and rolling their eyes and glaring at another kid.

Table 3. *Prevalence of physical aggression, confrontational relational aggression, and non-confrontational relational aggression among urban youth during the past 30 days.*

	Total (%)	Boys (%)	Girls (%)	χ^2
Physical Aggression				
Thrown something at someone to hurt them	38.6	37.5	39.6	0.12
Been in a fight in which someone was hit	37.4	42.2	33.1	2.40
Threatened to hurt a teacher	7.4	8.6	6.3	0.55
Shoved or pushed another kid	46.9	52.4	42.1	2.88
Threatened someone with a weapon (gun, knife, club, etc.)	6.2	7.8	4.8	1.07
Hit or slapped another kid	41.8	44.9	39.0	0.95
Threatened to hit or physically harm another kid	25.1	29.5	21.2	2.47
Confrontational Relational Aggression				
Ignored another kid when they approached your group	36.1	32.8	39.0	1.15
Told another kid that they couldn't join your group when they asked to	22.6	22.7	22.6	0.00
Started whispering about another kid and pointing at them when they walked by	31.0	25.0	36.3	4.07*
Gave mean looks to another student	52.7	44.2	60.3	7.11**
Told another kid you wouldn't like them unless they did what you wanted them to do	7.3	8.6	6.2	0.57
Rolled your eyes and glared at another kid	45.8	18.6	69.9	72.49***
Told another kid you would tell their "private" information unless they did what you wanted them to do	4.7	4.7	4.8	0.00
Tried to make a kid look bad by sharing their "private" information when you were with them and a group of other kids	6.2	6.3	6.2	0.00
Non-Confrontational Relational Aggression				
Told a kid something untrue about their friend to secretly harm their friendship	11.7	11.8	11.6	0.00
Spread a false rumor about someone	9.3	6.5	11.7	2.14
Gone behind a kid's back and shared their private information with other kids to make them look bad	9.1	6.3	11.6	2.39
"Dropped" a friend and made a new friend to get back at them	13.1	10.1	15.8	1.94
Told kids in your group not to let someone be part of your group anymore	14.5	16.3	13.0	0.59
Said things about a kid behind their back to hurt their reputation with other kids	9.1	9.4	8.9	0.02
Secretly tried to take away a boyfriend or girlfriend that your friend was already going with	12.5	16.5	8.9	3.63
Passed a hurtful note or e-mail about another kid	6.6	3.1	9.6	4.64*

Note: Ns ranged from 123 to 129 for boys and 144 to 146 for girls because of missing data.
*p<.05. **p<.01. ***p<.001.

For non-confrontational relational aggression, 30-day prevalence rates were generally lower than for physical and confrontational relational aggression. For example, only ten percent or more of students endorsed the following items over the previous 30-day period: told a kid something untrue about their friend to secretly harm their friendship, "dropped" a friend and made a new friend to get back at them, told kids in your group not to let someone be part of your group anymore, and secretly tried to take away a boyfriend or girlfriend that your friend was already going with. A significantly higher percentage of girls than boys reported passing a hurtful note or e-mail about another kid.

Table 4 presents the ranges, means, standard deviations, and effect sizes by gender for physical aggression, confrontational relational aggression, non-confrontational relational aggression, peer deviancy, delinquency, drug use, and social intelligence. An analysis of variance identified two significant differences in means by gender. Specifically, girls reported higher frequencies of confrontational relational aggression as compared to boys, $F(1, 272) = 10.48$, $p < .01$, and higher levels of peer deviancy were reported by boys as compared to girls, $F(1, 271) = 7.60$, $p < .01$.

Table 4. *Means, standard deviations, effect sizes, and observed ranges for aggression, peer deviancy, delinquency, drug use, and social intelligence variables by gender.*

	Total		Boys		Girls				
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*d*	Range
Physical Aggression	3.37	4.19	3.75	4.31	2.94	3.88	2.73	.20	0.00-26.00
Confrontational Relational Aggression	3.85	4.78	2.84	3.87	4.62	5.05	10.48**	.40	0.00-30.00
Non-Confrontational Relational Aggression	1.36	3.09	1.37	2.93	1.29	3.15	0.04	.03	0.00-31.00
Peer Deviancy	6.68	8.23	8.13	10.11	5.40	5.92	7.60**	.33	0.00-44.00
Delinquency	1.14	2.58	1.20	2.55	1.11	2.63	0.09	.03	0.00-25.00
Drug Use	0.85	2.54	0.86	2.63	0.86	2.50	0.00	.00	0.00-19.00
Social Intelligence	22.77	6.70	23.05	6.42	22.51	6.95	0.44	.08	0.00-40.00

Note: Total numbers ranged from 128 to 129 Boys, 145 to 146 Girls because of missing data.
*p<.05.   **p<.01.*

Bivariate correlations among all study variables were examined for the total sample and are presented in Table 5. Because of the large number of correlations, a Bonferroni correction (Keppel, 1991) was used to keep the family-wise error rate for all 21 correlations at $p < .10$. All correlations were significant based on this criterion except for the correlations between social intelligence and each of the aggression subscales and between social intelligence and peer deviancy. The three aggression subscales were strongly correlated with each other, including physical aggression and confrontational relational aggression ($r = .71$), physical aggression and non-confrontational relational aggression ($r = .62$), and confrontational relational aggression and non-confrontational relational aggression ($r = .68$). Each aggression subscale was significantly correlated with peer deviancy, delinquency, and drug use.

Several gender differences in correlations were found. The relation between physical aggression and social intelligence was significantly stronger for females than males ($r = .16$ and $.10$, $z = 4.86$, $p < .001$). Females also had stronger relations than males between their reported non-confrontational relational aggression and peer deviancy, ($r = .54$ and $.30$, $z = 2.36$, $p < .05$), delinquency ($r = .70$ and $.46$, $z = 3.02$, $p < .001$), and drug use ($r = .48$ and $.16$, $z = 2.94$, $p < .001$), respectively.

Table 5. *Correlations among aggression, peer deviancy, delinquency, drug use, and social intelligence.*

	1	2	3	4	5	6	7
1. Physical Aggression	—						
2. Confrontational Relational Aggression	.71*	—					
3. Non-Confrontational Relational Aggression	.62*	.68*	—				
4. Peer Deviancy	.52*	.44*	.38*	—			
5. Delinquency	.61*	.51*	.57*	.55*	—		
6. Drug Use	.46*	.34*	.32*	.51*	.52*	—	
7. Social Intelligence	.13	.16	.17	.13	.20*	.23*	—

Notes: Total numbers ranged from 268 to 277 because of missing data.
*correlations significant at a per-test significance level of p<.005 based on a multi-stage Bonferroni with a family-wise Type I error rate of p<.10.

Structure of Aggression

Reliability coefficients were examined to determine the internal consistency for study variables and to examine items indicated for deletion based on weak relations to their respective scales. All study variables had good internal consistency (α = .75 to .90). One item from the delinquency scale (in the last 30 days, how many times have you been on suspension) was indicated for deletion, increasing that scale's internal consistency from α = .74 to α = .79. This item was removed from the delinquency scale for the model analyses. In addition to this empirical evidence, conceptually this item was considered for deletion because of differences in disciplinary codes across the many schools represented by this sample, and because of the discrepancy between actual delinquent acts perpetrated and those acts for which the student is caught and penalized by school officials (e.g., one student may have high frequency of delinquency but low frequency of getting caught, whereas another student may have low frequency of delinquency but get caught each time they commit a delinquent act).

Because of the typically low reliability, low intercorrelations, and restricted correlations with other variables common when analyzing latent variables constructed

from individual items, parcels were created based on random item assignment (Kishton &
Widaman, 1994). These randomly assigned parcels were then analyzed for internal
consistency and unidimensionality (see Table 6). One of the 21 parcels was not
unidimensional based on analysis of eigenvalues of factors generated, and seven of the 21
parcels had internal consistencies below .60. Based on these results, the randomly
assigned parcels were determined not to meet the minimum standards required for parcel
analyses. Because the statistical assumptions for parcels were not adequately met,
aggression model analyses were run at the individual item level.

Insofar as the parcels of items did not have acceptable internal consistency for
statistical analysis, the primary focus of the individual item analyses presented is on
relative fit of the competing models, as models examined at the individual item level do
not typically attain levels of fit that are comparable with models examined based on
scales or clusters of items (Little, Cunningham, Shahar, & Widaman, 2002). The
comparative fit index (CFI) is presented for each model, with traditional expectations of
CFI's above .90 as indicating acceptable fit (Bentler, 1992). However, for the present
analyses, the CFI's are used only comparatively across models, due to the lower expected
values based on item-level analysis. Similarly, the root mean square error of
approximation (RMSEA) is traditionally expected to be below 0.08 to represent
acceptable fit (Browne & Cudeck, 1993), but again is considered comparatively across
models. Models are also compared using the chi-square difference test and the Bayesian
Information Criterion (BIC). When chi-square difference tests indicate a significant
difference across models, the models with lower chi-square values are favored. The BIC

favors more parsimonious models, with lower values reflecting better fit. BIC differences

between models of 5 indicate reasonable evidence for differences between models, and

differences of 10 or more indicate more conclusive evidence for differences between

models (Raftery, 1993).

Table 6. *Internal consistencies and principal components analyses for parcels of items.*

Parcel	Number of Items	Internal Consistency	Number of Factors
Non-Confrontational Relational 1	3	.78	1
Non-Confrontational Relational 2	3	.54	1
Non-Confrontational Relational 3	2	.37	1
Confrontational Relational 1	2	.67	1
Confrontational Relational 2	3	.65	1
Confrontational Relational 3	3	.63	1
Physical 1	2	.35	1
Physical 2	3	.64	1
Physical 3	2	.43	1
Delinquency 1	2	.60	1
Delinquency 2	2	.72	1
Delinquency 3	3	.63	1
Peer Deviancy 1	5	.77	1
Peer Deviancy 2	5	.79	2
Peer Deviancy 3	5	.71	1
Drug Use 1	2	.71	1
Drug Use 2	2	.79	1
Drug Use 3	2	.37	1
Social Intelligence 1	3	.51	1
Social Intelligence 2	3	.49	1
Social Intelligence 3	4	.67	1

Note: Different subtypes of aggression can be formed based on different constellations of the above parcels (e.g., Relational Aggression comprised of Non-Confrontational and Confrontational Relational Aggression parcels, Confrontational Aggression comprised of Confrontational Relational Aggression and Physical Aggression parcels, etc.).

Four models were tested separately for boys and girls to determine the best-fitting

structure of aggression for each gender. Model 1 evaluated whether all 23 items of the

CANAS represent a single underlying aggression factor (see Figure 1). Model 2 evaluated whether the 23 items of the CANAS represent two correlated factors of physical aggression and relational aggression (see Figure 2). Model 3 evaluated whether the 23 items of the CANAS represent two correlated factors of confrontational and non-confrontational aggression (see Figure 3). Model 4 evaluated whether physical aggression, non-confrontational relational aggression, and confrontational relational aggression represent distinct but correlated factors (see Figure 4).

Item-level analyses of models for boys are presented in Table 7. For boys, as expected based on the individual item analysis, no models reached objective standards for goodness of fit (CFIs were below .90 and RMSEAs were above .08). However, comparatively, model 3 (mechanism of action model) emerged as the best fitting model. Comparison of the single factor model of aggression (model 1) with models 2 and 3 (two correlated factors of aggression via the vehicle of harm and mechanism of action structures, respectively) favored model 3. Although the chi-square difference tests indicate that both models 2 and 3 are significantly better in fit than model 1 (χ^2 difference between models of 5.09, $p < .05$, and 10.58, $p < .01$, respectively), little difference in the BIC values were found between models 1 and 2 ($\Delta = -0.21$), while the BIC difference of -5.70 between models 1 and 3 shows a sufficient improvement in fit for model 3. The BIC test favors more parsimonious models and the difference of -5.70 between models 1 and 3 supports model 3 as providing a comparatively better fit, despite its increased complexity. In contrast, when comparing the three correlated factors model of aggression (model 4) with the two correlated factors model (model 3), the BIC increase of +2.87

indicates support for model 3. Therefore, for boys, the two correlated factors model based on the mechanism of action (model 3) was selected as the comparatively best fitting model. Examination of descriptive statistics for aggression variables in this model indicated that boys' self-reported mean levels of confrontational aggression were higher than their self-reported mean levels of non-confrontational aggression (M=6.59, SD=7.65; and M=1.37, SD=2.93, respectively).

Item-level analyses of models for girls are presented in Table 8. Similarly for girls, as expected based on the individual item analysis, no models reached objective standards for goodness of fit (CFIs were below .90 and RMSEAs were above .08). However, comparatively, model 2 (vehicle of harm model) emerged as the best fitting model. Comparison of the single factor model of aggression (model 1) with models 2 and 3 (two correlated factors of aggression via the vehicle of harm and mechanism of action structures, respectively) favored model 2. Although the chi-square difference tests indicate that both models 2 and 3 are significantly better in fit than model 1 (χ^2 difference between models of 55.06, $p < .001$, and 6.16, $p < .05$, respectively), the BIC difference of -50.07 between models 1 and 2 offers strong support for the increase in goodness of fit for model 2 over model 1, despite the parsimony of the single factor model. In contrast, the BIC difference of -1.18 between models 1 and 3 does not support the increase in complexity of model 3 in comparison to the parsimony of the simpler model. When comparing the three correlated factors model of aggression (model 4) with the two correlated factors model (model 2), the chi-square difference test is not significant, and the BIC increase of +7.26 indicates support for model 2. Therefore, for girls, the two

correlated factors model based on the vehicle of harm (model 2) was selected as the comparatively best fitting model. Examination of descriptive statistics for the aggression variables in this model revealed that girls' self-reported mean levels of relational aggression were higher than their self-reported mean levels of physical aggression (M=5.91, SD=7.48; and M=2.94, SD=3.88).

Table 7. *Fit indices for models of aggression for boys.*

	χ^2	df	CFI	RMSEA	BIC	Model Comparison	$\Delta\chi^2$	Δ BIC
Model 1: Single Factor (Aggression)	1101.24	230	.46	.17	6226.34			
Model 2: Two Correlated Factors: Vehicle of Harm (Physical/Relational Aggression)	1096.15	229	.46	.17	6226.13	1	5.09*	-0.21
Model 3: Two Correlated Factors: Mechanism of Action (Confrontational/Non-Confrontational Aggression)	*1090.66*	*229*	*.47*	*.17*	*6220.64*	*1*	*10.58***	*-5.70*
Model 4: Three Correlated Factors (Physical, Confrontational Relational, and Non-Confrontational Relational Aggression)	1083.78	227	.47	.17	6223.51	3	6.88*	+2.87

Note. CFI = Comparative Fit Index. RMSEA = Root mean square error of approximation. BIC = Bayesian Information Criterion. Italics indicate the factor structure chosen as the comparatively best fitting model.
*p<.05. **p<.01.

Table 8. *Fit indices for models of aggression for girls.*

	χ^2	*df*	CFI	RMSEA	BIC	Model Comparison	$\Delta\chi^2$	Δ BIC
Model 1: Single Factor (Aggression)	927.33	230	.64	.14	5857.01			
Model 2: Two Correlated Factors: Vehicle of Harm (Physical/Relational Aggression)	*872.27*	*229*	*.67*	*.14*	*5806.94*	*1*	*55.06****	*-50.07*
Model 3: Two Correlated Factors: Mechanism of Action (Confrontational/Non-Confrontational Aggression)	921.17	229	.65	.14	5855.83	1	6.16*	-1.18
Model 4: Three Correlated Factors (Physical, Confrontational Relational, and Non-Confrontational Relational Aggression)	869.56	227	.67	.14	5814.20	2	2.71	+7.26

Note. *CFI = Comparative Fit Index. RMSEA = Root mean square error of approximation. BIC = Bayesian Information Criterion. Italics indicate the factor structure chosen as the comparatively best fitting model.*
* p<.05.   ***p<.001.

Relations Between Aggression and Correlates

Because model 3 (mechanism of action model) emerged as the model of best fit for boys, and model 2 (vehicle of harm model) emerged as the model of best fit for girls, latent variable model analyses were examined separately for boys and girls. Again, because of the lower expected fit indices based on item-level analyses (Little et al., 2002), the latent variable models did not reach traditional levels of acceptable fit. For boys, the CFI was .39, and the RMSEA was .13, while for girls, the CFI was .52 and the RMSEA was .11. Tables 9 and 10 show the relations between aggression and its correlates for boys and girls, respectively. Tables 11 and 12 show all factor loadings for the latent model analyses for boys and girls, respectively.

For boys, confrontational aggression was significantly correlated with all other variables except for social intelligence. Non-confrontational aggression was significantly correlated with confrontational aggression, peer deviancy, and delinquency. Delinquency, peer deviancy, and drug use were all significantly correlated with each other. Whereas confrontational aggression was significantly correlated with drug use, non-confrontational aggression was not. Social intelligence was not significantly correlated with any other study variables.

For girls, physical aggression was significantly correlated with all other variables, including social intelligence, whereas relational aggression was significantly correlated with all other variables except for social intelligence. As with the analysis for boys, girls' self-reported delinquency, peer deviancy, and drug use were all significantly correlated

with each other. In contrast to the boys' analysis, however, social intelligence was

significantly correlated with drug use and delinquency for girls.

Table 9. *Relations among confrontational and non-confrontational aggression and peer deviancy, delinquency, drug use, and social intelligence for boys.*

	1	2	3	4	5	6
1. Confrontational Aggression	—					
2. Non-Confrontational Aggression	.84***	—				
3. Peer Deviancy	.57***	.26*	—			
4. Delinquency	.64***	.53***	.65***	—		
5. Drug Use	.43***	.01	.65***	.35**	—	
6. Social Intelligence	.09	.14	.11	.20	.12	—

Note: Ns ranged from 123 to 129 for boys because of missing data.
**p<.05. **p<.01. ***p<.001.*

Table 10. *Relations among physical and relational aggression and peer deviancy, delinquency, drug use, and social intelligence for girls.*

	1	2	3	4	5	6
1. Physical Aggression	—					
2. Relational Aggression	.78***	—				
3. Peer Deviancy	.64***	.68***	—			
4. Delinquency	.84***	.85***	.69***	—		
5. Drug Use	.62***	.57***	.56***	.69***	—	
6. Social Intelligence	.27*	.19	.15	.21*	.28**	—

Note: Ns ranged from 144 to 146 for girls because of missing data.
**p<.05. **p<.01. ***p<.001.*

Table 11. *Standardized values for parameters for model 3 for boys.*

Construct/Indicator	Model Loadings for Boys
Confrontational Aggression	
Thrown something at someone to hurt them	.45
Been in a fight in which someone was hit	.48
Threatened to hurt a teacher	.48
Shoved or pushed another kid	.71
Threatened someone with a weapon (gun, knife, club, etc.)	.63
Hit or slapped another kid	.58
Threatened to hit or physically harm another kid	.78
Told another kid that they couldn't join your group when they asked to	.50
Ignored another kid when they approached your group	.49
Started whispering about another kid and pointing at them when they walked by	.63
Gave mean looks to another student	.74
Told another kid you wouldn't like them unless they did what you wanted them to do	.46
Told another kid you would tell their "private" information unless they did what you wanted them to do	.41
Tried to make a kid look bad by sharing their "private" information when you were with them and a group of other kids	.46
Rolled your eyes and glared at another kid	.57
Non-Confrontational Aggression	
Told kids in your group not to let someone be part of your group anymore	.50
Spread a false rumor about someone	.67
Said things about a kid behind their back to hurt their reputation with other kids	.67
Passed a hurtful note or e-mail about another kid	.27
Secretly tried to take away a boyfriend or girlfriend that your friend was already going with	.47
"Dropped" a friend and made a new friend to get back at them	.27
Told a kid something untrue about their friend to secretly harm their friendship	.50
Gone behind a kid's back and shared their private information with other kids to make them look bad	.71

Table 11 (continued)

Construct/Indicator	Model Loadings for Boys
Delinquency	
Stolen something from another student	.65
Snuck into someplace without paying, such as into the movies or onto a bus	.59
Skipped school	.61
Cheated on a test	.60
Taken something from a store without paying for it (shoplifted)	.65
Written things or sprayed paint on walls, sidewalks, or cars where you were not supposed to	.59
Damaged school or other property that did not belong to you	.55
Peer Deviancy	
Skipped school without an excuse	.54
Lied, disobeyed, or talked back to adults such as parents, teachers, or others	.59
Purposely damaged or destroyed property that did not belong to them	.66
Stolen something worth less than $5	.56
Stolen something worth more than $5 but less than $100	.63
Stolen something worth more than $100	.74
Gone into or tried to go into a building to steal something	.70
Gone joyriding, that is, taken a motor vehicle such as a car or motorcycle for a ride or drive without the owner's permission	.76
Hit someone with the idea of hurting that person	.64
Attacked someone with a weapon or with the idea of seriously hurting that person	.81
Used a weapon, force, or strongarm methods to get money or things from people	.84
Sold hard drugs such as heroin, cocaine, or LSD	.80
Used alcohol	.79
Used marijuana or hashish	.72
Used hard drugs such as heroin, cocaine, or LSD	.46
Drug Use	
Drunk beer (more than a sip or taste)	.84
Drunk wine or wine coolers (more than a sip or taste)	.80
Smoked cigarettes	.32
Been drunk	.76
Drunk liquor (like whiskey or gin)	.91
Used marijuana (pot, hash, reefer)	.68

Table 11 (continued)

Construct/Indicator	Model Loadings for Boys
Social Intelligence	
You notice easily if others lie	.33
You are able to get along with other people	.54
You fit in easily with new people and new situations	.51
You are able to get your wishes carried out	.64
You are able to guess the feelings of others, even when they don't want to show them	.54
You are aware of the weak spots of others	.57
You know how to get others to laugh	.36
You are able to persuade others to do almost anything	.66
You are able to take advantage of others if you want to	.43
You are able to talk others into taking your side	.39

Table 12. *Standardized values for parameters for model 2 for girls.*

Construct/Indicator	Model Loadings for Girls
Physical Aggression	
Thrown something at someone to hurt them	.55
Been in a fight in which someone was hit	.56
Threatened to hurt a teacher	.76
Shoved or pushed another kid	.48
Threatened someone with a weapon (gun, knife, club, etc.)	.68
Hit or slapped another kid	.49
Threatened to hit or physically harm another kid	.60
Relational Aggression	
Told another kid that they couldn't join your group when they asked to	.52
Ignored another kid when they approached your group	.43
Started whispering about another kid and pointing at them when they walked by	.55
Gave mean looks to another student	.38
Told another kid you wouldn't like them unless they did what you wanted them to do	.85
Told another kid you would tell their "private" information unless they did what you wanted them to do	.73
Tried to make a kid look bad by sharing their "private" information when you were with them and a group of other kids	.84
Rolled your eyes and glared at another kid	.37
Told kids in your group not to let someone be part of your group anymore	.59
Spread a false rumor about someone	.74
Said things about a kid behind their back to hurt their reputation with other kids	.60
Passed a hurtful note or e-mail about another kid	.62
Secretly tried to take away a boyfriend or girlfriend that your friend was already going with	.71
"Dropped" a friend and made a new friend to get back at them	.69
Told a kid something untrue about their friend to secretly harm their friendship	.68
Gone behind a kid's back and shared their private information with other kids to make them look bad	.85

Table 12 (continued)

Construct/Indicator	Model Loadings for Girls
Delinquency	
Stolen something from another student	.47
Snuck into someplace without paying, such as into the movies or onto a bus	.80
Skipped school	.45
Cheated on a test	.48
Taken something from a store without paying for it (shoplifted)	.71
Written things or sprayed paint on walls, sidewalks, or cars where you were not supposed to	.90
Damaged school or other property that did not belong to you	.86
Peer Deviancy	
Skipped school without an excuse	.48
Lied, disobeyed, or talked back to adults such as parents, teachers, or others	.43
Purposely damaged or destroyed property that did not belong to them	.68
Stolen something worth less than $5	.60
Stolen something worth more than $5 but less than $100	.65
Stolen something worth more than $100	.53
Gone into or tried to go into a building to steal something	.46
Gone joyriding, that is, taken a motor vehicle such as a car or motorcycle for a ride or drive without the owner's permission	.73
Hit someone with the idea of hurting that person	.49
Attacked someone with a weapon or with the idea of seriously hurting that person	.67
Used a weapon, force, or strongarm methods to get money or things from people	.50
Sold hard drugs such as heroin, cocaine, or LSD	.45
Used alcohol	.54
Used marijuana or hashish	.51
Used hard drugs such as heroin, cocaine, or LSD	.18
Drug Use	
Drunk beer (more than a sip or taste)	.78
Drunk wine or wine coolers (more than a sip or taste)	.77
Smoked cigarettes	.65
Been drunk	.75
Drunk liquor (like whiskey or gin)	.88
Used marijuana (pot, hash, reefer)	.73

Table 12 (continued)

Construct/Indicator	Model Loadings for Girls
Social Intelligence	
You notice easily if others lie	.50
You are able to get along with other people	.28
You fit in easily with new people and new situations	.47
You are able to get your wishes carried out	.33
You are able to guess the feelings of others, even when they don't want to show them	.64
You are aware of the weak spots of others	.63
You know how to get others to laugh	.47
You are able to persuade others to do almost anything	.63
You are able to take advantage of others if you want to	.52
You are able to talk others into taking your side	.67

Alternative Modeling of Aggression

Following the comparative fit analysis and latent variable analysis of aggression and its correlates, all aggression items were re-examined using a principal components analysis to examine an exploratory, empirically-driven factor analytic structure. Due to positive skewness and kurtosis of the distribution for the aggression items, all items comprising the aggression subscales were log transformed, and then the resulting values were multiplied by 10 to facilitate reporting. Exploratory factor analyses with a varimax rotation were completed using the transformed data for boys and girls, separately. Item loadings of .40 or higher were considered significant, and items were dropped if they did not reach that level of significance or if they loaded significantly on more than one factor (e.g., Floyd & Widaman, 1995; Maisto, Conigliaro, McNeil, Kraemer, & Kelley, 2000).

The analysis for boys generated a seven-factor rotated component matrix (see Table 13), accounting for a cumulative percentage of 70.31% variance. Five items from

this matrix met criteria for deletion due to loadings of .40 or higher on more than one factor. The boys' seven-factor structure generated some conceptually interpretable clusters of items. For example, factor two might be described as reputational harm through information dissemination. Factor four reflects physical posturing or gesturing to convey negative affect, and factor five could be described as social network or group control. However, other factors were less clearly interpretable, such as factor one, with a cluster of physical aggression items and one relational aggression item, and factor three, with two items on secret peer relationship manipulations and one item on threatening to hurt a teacher. Additionally, two factors were extracted with only one item per factor. Because the seven-factor structure lacked a clear conceptually-based structure, no final emergent hypotheses regarding the structure of aggression for boys are offered based on these analyses.

For girls, the analysis generated a five-factor rotated component matrix (see table 14), accounting for a cumulative percentage of 62.77% variance. Four items from this matrix were indicated for deletion due to loadings of .40 or higher on more than one factor, and one item met criteria for deletion based on no factor loadings of .40 or higher. The girls' five-factor structure generated reasonably interpretable clusters of items. Factor one was comprised of exclusively relational aggression items, factor two was comprised of exclusively confrontational items (physical and confrontational relational aggression), and factor three was comprised of threats of physical harm. Factor four was interpretable as a cluster of relational aggression items, yet the distinction between the relational aggression items of factors one and four was not clear. Factor five was

comprised of a single item. Because the five-factor structure did not converge on a hypothesized conceptually-based structure, no final emergent hypotheses regarding the structure of aggression for girls are offered based on these analyses.

Table 13. *Aggression item loadings on seven factors derived from exploratory principal components analysis for boys.*

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Original Dimension	Eigen-values	% Variance
Factor 1									3.41	14.84
Threatened someone with a weapon (gun, knife, club, etc.)	*.50*	.30	.06	.35	-.25	.20	-.30	Physical		
Shoved or pushed another kid	*.68*	.14	.06	.33	.19	-.01	.25	Physical		
Hit or slapped another kid	*.75*	.11	-.10	-.02	.33	.05	.10	Physical		
Thrown something at someone to hurt them	*.67*	.21	.04	.10	.07	.06	.01	Physical		
Gave mean looks to another student	*.63*	.06	.27	.31	.23	.09	.12	Conf. Rel.		
Factor 2									2.89	12.55
Tried to make a kid look bad by sharing their "private" information when you were with them and a group of other kids	.13	*.77*	.20	-.07	.20	-.05	-.13	Conf. Rel.		
Spread a false rumor about someone	.09	*.83*	.16	.13	.08	.22	.12	Non-Conf. Rel.		
Said things about a kid behind their back to hurt their reputation with other kids	.27	*.76*	.11	.04	.16	-.09	-.05	Non-Conf. Rel.		
Factor 3									2.38	10.36
Threatened to hurt a teacher	.17	-.17	*.63*	.21	.40	.02	-.41	Physical		
Secretly tried to take away a boyfriend or girlfriend that your friend was already going with	.21	.19	*.64*	-.16	.10	.03	.18	Non-Conf. Rel.		
Told a kid something untrue about their friend to secretly harm their friendship	.00	.22	*.71*	.23	-.03	.08	.19	Non-Conf. Rel.		
Factor 4									2.34	10.18
Rolled your eyes and glared at another kid	.15	.08	.13	*.80*	.03	.10	.11	Conf. Rel.		
Started whispering about another kid and pointing at them when they walked by	.29	.26	.21	*.62*	.21	-.42	.13	Conf. Rel.		

Note. Italics indicate the factor on which the item loads. Items with no italicized factor loadings were indicated for deletion.

Table 13 (continued)

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Original Dimension	Eigen-values	% Variance
Factor 5									2.27	9.89
Ignored another kid when they approached your group	.09	.04	.26	.17	*.60*	.31	.01	Conf. Rel.		
Told another kid that they couldn't join your group when they asked to	.28	.27	.10	.09	*.69*	-.15	-.04	Conf. Rel.		
Told kids in your group not to let someone be part of your group anymore	.20	.26	-.03	.09	*.81*	.01	.25	Non-Conf. Rel.		
Factor 6									1.50	6.51
Told another kid you wouldn't like them unless they did what you wanted them to do	.27	.01	.24	.04	.08	*.78*	-.05	Conf. Rel.		
Factor 7									1.38	5.99
"Dropped" a friend and made a new friend to get back at them	.21	-.07	.13	.09	.13	.02	*.84*	Non-Conf. Rel.		
Items Indicated for Deletion										
Threatened to hit or physically harm another kid	.58	.18	.21	.48	.17	.09	-.10	Physical		
Been in a fight in which someone was hit	.63	-.05	.42	-.06	.01	.14	.05	Physical		
Told another kid you would tell their "private" information unless they did what you wanted them to do	.04	.50	-.06	.28	.03	.59	.18	Conf. Rel.		
Gone behind a kid's back and shared their private information with other kids to make them look bad	.09	.44	.67	.26	.08	.14	-.23	Non-Conf. Rel.		
Passed a hurtful note or e-mail about another kid	.16	-.21	-.09	.64	.42	.26	-.16	Non-Conf. Rel.		

Note. Italics indicate the factor on which the item loads. Items with no italicized factor loadings were indicated for deletion.

Table 14. *Aggression item loadings on five factors derived from exploratory principal components analysis for girls.*

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Original Dimension	Eigen-values	% Variance
Factor 1							4.79	20.82
Told another kid you wouldn't like them unless they did what you wanted them to do	.73	.06	.22	.33	.01	Conf. Rel.		
Tried to make a kid look bad by sharing their "private" information when you were with them and a group of other kids	.81	.13	.22	.11	.05	Conf. Rel.		
Told another kid you would tell their "private" information unless they did what you wanted them to do	.59	.05	.24	.22	.06	Conf. Rel.		
Gone behind a kid's back and shared their private information with other kids to make them look bad	.79	.11	.13	.21	.12	Non-Conf. Rel.		
Told kids in your group not to let someone be part of your group anymore	.68	.12	-.02	.25	.08	Non-Conf. Rel.		
Said things about a kid behind their back to hurt their reputation with other kids	.71	.15	.17	-.05	.04	Non-Conf. Rel.		
Told a kid something untrue about their friend to secretly harm their friendship	.69	.23	.03	.05	.33	Non-Conf. Rel.		
Factor 2							3.96	17.20
Shoved or pushed another kid	.10	.68	.33	.04	.10	Physical		
Hit or slapped another kid	.07	.73	.16	.17	-.05	Physical		
Ignored another kid when they approached your group	.30	.70	-.04	.17	-.16	Conf. Rel.		
Rolled your eyes and glared at another kid	.19	.77	-.13	.04	.24	Conf. Rel.		
Gave mean looks to another student	-.01	.77	.01	.19	.23	Conf. Rel.		
Started whispering about another kid and pointing at them when they walked by	.26	.43	.25	.26	.27	Conf. Rel.		
Factor 3							2.38	10.33
Threatened to hurt a teacher	.27	.02	.80	.11	.09	Physical		
Threatened someone with a weapon (gun, knife, club, etc.)	.23	.04	.82	.14	.19	Physical		

Note. Italics indicate the factor on which the item loads. Items with no italicized factor loadings were indicated for deletion.

Table 14 (continued)

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Original Dimension	Eigen-values	% Variance
Factor 4							1.85	8.06
Told another kid that they couldn't join your group when they asked to	.20	.30	.04	*.60*	.18	Conf. Rel.		
Passed a hurtful note or e-mail about another kid	.26	.19	.11	*.77*	.15	Non-Conf. Rel.		
Factor 5							1.46	6.36
Secretly tried to take away a boyfriend or girlfriend that your friend was already going with	.25	.18	.20	.32	*.71*	Non-Conf. Rel.		
Items Indicated for Deletion								
Been in a fight in which someone was hit	.22	.35	.35	.33	-.32	Physical		
Threatened to hit or physically harm another kid	.15	.56	.22	.41	-.05	Physical		
Thrown something at someone to hurt them	.12	.42	.58	-.05	.01	Physical		
Spread a false rumor about someone	.53	.13	.22	.10	.62	Non-Conf. Rel.		
"Dropped" a friend and made a new friend to get back at them	.56	.45	.23	-.20	.15	Non-Conf. Rel.		

Note. Italics indicate the factor on which the item loads. Items with no italicized factor loadings were indicated for deletion.

Discussion

Summary and Discussion of Findings

The purpose of this study was to examine the structure of aggression for boys and girls through development and evaluation of a measure of aggression based on the constructs of the vehicle of harm (i.e., physical harm or relational harm) and the mechanism of action (i.e., confrontational action or non-confrontational action). Further, this study evaluated the relations among these aggression subtypes and predicted correlates, including peer deviancy, delinquency, drug use, and social intelligence, for boys and girls separately. As hypothesized, the structures of aggression conceptualized by the vehicle of harm and mechanism of action models represented relevant constructs in the classification of aggression. The comparatively best fitting model of aggression for boys was the mechanism of action model, and for girls was the vehicle of harm model.

Consistent with previous findings, the prevalence of aggression within this urban, community sample of youth indicates that a substantial number of youth engaged in actions of confrontational relational aggression and physical aggression, which have been shown to be related to adjustment difficulties (e.g., Crick et al., 2006). Reported prevalence of physical aggression was somewhat lower than in some previous work with demographically similar samples (e.g., Farrell et al., 2000). However, some sample selection bias may have impacted the prevalence rates within this sample, in comparison with the random school-based sample from Farrell and colleagues (2000). Similarly, reported prevalence of selected forms of relational aggression was somewhat lower than in some previous work (Farrell et al., 2000). Previous patterns of higher prevalence rates

100

for giving means looks among females than males (Farrell et al., 2000) was consistent with gender patterns in the current study. For example, females in the current study reported higher prevalence than males of giving mean looks, whispering/pointing, and rolling eyes/glaring at other students. These findings are also consistent with other research indicating the importance of studying non-verbal gesturing as a means of achieving social or relational harm, especially among females (e.g., Underwood, 2003). In contrast to the higher prevalence of physical and confrontational relational aggression, the prevalence of non-confrontational relational aggression was relatively low in this sample. One study of non-confrontational social aggression among inner-city African-American children suggested that overall levels of social aggression may be relatively lower than levels of physical aggression for this population (Xie, Farmer, & Cairns, 2003). Because the distinction between confrontational and non-confrontational relational aggression is a novel framework, future work should evaluate this finding in more detail.

Numerous studies have shown higher frequency of physical aggression among males and some studies also have shown a higher frequency of relational aggression among females (e.g., Björkqvist, Österman, et al., 1992; Coie & Dodge, 1998; Crick, 1997; Crick & Grotpeter, 1995; Eagly & Steffen, 1986). However, in the current study, contrary to predictions, there were no gender differences on physical aggression, and mixed support for gender differences in the two subtypes of relational aggression. There were no gender differences across items in the 30-day prevalence of physical aggression, and for non-confrontational relational aggression, only "passing a hurtful note or email" was more common among females than males. Similarly, there were no differences in

mean levels of physical aggression or non-confrontational relational aggression among males and females in the current study. Confrontational relational aggression, however, was more common among females than males. Specifically, females had higher 30-day prevalence rates on items of confrontational relationally-based physical gesturing (e.g., giving means looks, whispering/pointing, and rolling eyes/glaring). Although the mean level of self-reported relational aggression was higher among females than males, this finding must be interpreted within the context of the significant difference in mean level of confrontational relational aggression and non-significant difference in non-confrontational relational aggression, each of which comprise the relational aggression composite.

Comparisons of prevalence rates for confrontational and non-confrontational relational aggression with other samples are difficult because relational aggression has typically been assessed as a composite comprising both of these forms of relational aggression. Therefore, it is hard to predict what gender differences might emerge in other samples if these respective forms of relational aggression were examined separately. However, prevalence rates of physical aggression were similar for girls and boys. Although high rates of physical aggression among girls have been classified as "gender nonnormative" by researchers focusing on predominantly middle class, suburban, Caucasian youth (e.g., Crick, 1997), emerging literature suggests that both physical and relational aggression are relevant and may occur frequently for girls (e.g., Pepler, Madsen, Webster & Levene, 2005). The current study highlights the importance of considering both cultural and socioecological factors that may influence the expression of

aggression in girls. Miller-Johnson et al. (2005) specifically focused on rising rates of physical aggression among African American girls growing up in disadvantaged neighborhoods characterized by high rates of crime and violence. Unfortunately, a substantial number of urban African American youth may be exposed to significantly higher levels of poverty and more stressors than Caucasian youth (Prelow, Danoff-Burg, Swenson, & Pulgiano, 2004), and exposure to such risk factors have been demonstrated to increase the risk for youth of developing adjustment difficulties (e.g., Attar, Guerra, & Tolan, 1994). Thus, in contrast to many studies on gender differences including physical aggression (e.g., Crick, 1997; Crick & Grotpeter, 1995) which have been embedded in a context of presumably lower ecological risk, the present study points to the importance of considering cultural context in relation to gender roles and expectations. In a high-stress, low-resource context in which much of the current sample is embedded, direct confrontation by girls may have more utility or be discouraged less than in a lower risk context. Another potential explanation is that these findings may also more generally represent a declining in gender differences in aggression due to a shifting cultural milieu emphasizing dominance, power, strength, and competition for females (Viemerö, 1992).

As hypothesized, the vehicle of harm and mechanism of action domains represented relevant constructs in the assessment of the structure of aggression. Although no a priori hypotheses were offered regarding the specific model of best fit between these two models by gender, differential findings emerged for both boys and girls. For boys, the mechanism of action model was determined to be the comparatively best fitting model, suggesting that for boys in this sample, the element of confrontation (i.e., the

mechanism of action) best characterized the relevant structure of aggression. In contrast, for girls, the vehicle of harm model was determined to be the comparatively best fitting model, suggesting that for girls in this sample, the type of harm enacted (e.g., physical or relational harm) represents the relevant construct for characterization of the structure of aggression. Because no known work to date has directly examined these specific subtypes of aggression (specifically explicating the mechanism of action in direct comparison to the vehicle of harm), these findings provide an important foundation for future work to replicate these results and extend this research by exploring possible explanations for the contextual, cultural, psychosocial, or other reasons supporting these respective structures of aggression by gender.

Several possible explanations may begin to elucidate these findings on the structure of aggression by gender and should be explored in further research. First, for boys, traditional gender roles and norms may create a context in which direct confrontation is highly valued for males in society. For example, research has shown that boys typically emphasize direct competition within traditionally large and permeable friendship groups (Björkqvist, Lagerspetz, et al., 1992; Lagerspetz et al., 1988). Boys' friendships also place greater emphasis on companionship among individuals sharing common interests than on intimacy and interdependence (Galambos, 2004). This emphasis on direct action, overt competition, and shared activity rather than emotional intimacy within boys' relationships may offer support for the conceptualization of aggression among males via the mechanism of action model insofar as the element of confrontation may be of particular relevance.

In contrast to the emphasis on competition and shared activities within male social networks (Björkqvist, Lagerspetz, et al., 1992; Galambos, 2004; Lagerspetz et al., 1988), relational connection and intimacy may be more highly valued for females in society. Specifically, girls' friendships tend to focus more on intimacy, interdependence, empathy, and emotional nurturing than boys' friendships (Galambos, 2004). Research has also shown that in contrast to the large, permeable social networks of males, females maintain more rigid social groups, often with intimate partnerships among fewer individuals (Björkqvist, Lagerspetz, et al., 1992; Lagerspetz et al., 1988). Thus, within the female social context, relational harm may be easier to achieve for girls due to more distinctly formed social networks. Relational harm may also be viewed as more damaging, due to the value placed on those intimate partnerships. In fact, researchers have proposed that social and relational forms of aggression may be particularly relevant for females because of the importance of the relational context (e.g., Crick, 1996; Underwood, 2003). Thus, the salience of this relational context offers support for the current findings on the structure of aggression among females via the vehicle of harm model.

For boys, mixed support was found for hypotheses regarding the association between aggression and maladjustment. As predicted, confrontational aggression (comprised of physical and confrontational relational aggression items) was significantly correlated with peer deviancy, delinquency, and drug use. Also, as predicted, non-confrontational aggression (comprised of non-confrontational relational aggression items) was not significantly associated with drug use. However, non-confrontational aggression

was significantly associated with delinquency and peer deviancy, although the magnitude of the correlation with peer deviancy was lower. For boys, the confrontational and non-confrontational structure reflects a novel conceptualization of aggression. However, based on the existing literature on maladjustment outcomes and physical (purely confrontational) and relational (mixture of confrontational and non-confrontational) aggression (Cairns, Cairns, & Neckerman, 1989; Crick et al., 1999; Crick et al., 2006; Farrell et al., 2005; Farrington, 1986; Huesmann et al., 1984; Xie et al., 2001), the current findings on relations between confrontational aggression (comprised of physical and confrontational relational aggression) and maladjustment indicators are supported. Interestingly, non-confrontational relational aggression was also associated with peer deviancy and delinquency, but was not associated with drug use. Future research should explore possible explanations for this differential pattern of associations.

For girls, as predicted, physical aggression was significantly correlated with peer deviancy, delinquency, and drug use. Relational aggression (comprised of both confrontational and non-confrontational relational aggression items) was also significantly correlated with each measure of maladjustment. An extensive body of literature has linked physical aggression with concurrent and future maladjustment across a host of domains (e.g., Cairns, Cairns, & Neckerman, 1989; Farrell et al., 2005; Farrington, 1986; Huesmann et al., 1984; Xie et al., 2001), and thus the association for females between physical aggression and peer deviancy, delinquency, and drug use was consistent with previous findings. Additionally, research has shown associations between relational aggression and delinquency, antisocial behavior, and externalizing behavior,

and there is some evidence to suggest that those relations are stronger for females than males (Crick et al., 1999; Prinstein et al., 2001), supporting the findings of the current study for girls as well.

Again, the importance of considering contextual factors when interpreting the current findings is paramount, as much of the current research on relational, social, and indirect forms of aggression has focused on Caucasian or European, middle class samples (e.g., Björkqvist, Lagerspetz, et al., 1992; Crick, 1997; Crick & Grotpeter, 1995; Xie, Cairns, et al., 2002). Thus, for example, whereas social intelligence was predicted to be associated with non-confrontational aggression for boys, that prediction was based on samples in which confrontation may not have had the same utility or may have been valued in a different way. Additionally, because social intelligence was not significantly associated with any study variables for boys, the current self-report version of the social intelligence scale may inadequately assess the construct of social intelligence or may assess a slightly different construct altogether for boys. Further norming and validation with this newly revised measure (the measure had previously been used only in peer-report form; Kaukiainen et al., 1995) may help to clarify some of these findings.

In contrast to predictions for girls, physical aggression was significantly correlated with social intelligence whereas relational aggression was not. However, as with the results for boys, these findings must be interpreted within the context in which the current sample is embedded in contrast to the Caucasian, middle class samples of many other studies (e.g., Crick, 1997; Crick & Grotpeter, 1995; Xie, Cairns, et al., 2002). If physical aggression serves an instrumental function for girls in high-risk situations

where the likelihood of violence is high, then in such contexts the use of physical aggression might be considered to be quite socially intelligent.

Following the conceptually-driven confirmatory analyses proposed to evaluate the structure of aggression, exploratory principal components analyses were used to examine the empirically-driven emergent structure of aggression for boys and girls. For boys and girls, the seven-factor and five-factor structures generated some interpretable clusters of items, but lacked a clear conceptually-based structure, and so no final emergent hypotheses regarding the structure of aggression were offered based on these analyses.

Limitations and Directions for Future Research

Despite the unique strengths of the current study in examining aggression from a novel perspective in a sample of urban, predominantly African American youth, several limitations exist that should be considered when interpreting the current findings. First, the current study relied solely on self-report measures. Although research has supported the use of self-report measures with adolescents as being reasonably honest and reliable (e.g., Oetting & Beauvais, 1990), some self-report biases may be introduced, perhaps particularly with less direct forms of aggression (e.g., non-confrontational relational aggression) on which adolescents may rationalize their use of indirect tactics as being non-aggressive or "justified." Ironically, those same indirect actions, however, may be the least readily reported on by others, simply due to their covert nature. One suggestion for future research would be to integrate assessments from multiple informants over differing contexts, as suggested by previous research (Crick et al., 1999).

In addition to the limitations imposed by exclusive reliance on self-report measures, the current study was limited by its exclusion of measures on conceptually relevant constructs, such as empathy. The current study attempted to examine the relations between aggression subtypes and social intelligence; however, previous research has shown that this relation may be influenced by empathy (Björkqvist et al., 2000). Interpretation of the current results is complicated by this possibility of an interaction between social intelligence and empathy, and future work should more clearly evaluate this relationship.

Another limitation of the current study regards the sample characteristics. Because the sample was recruited through community flyers, community agencies, and "word-of-mouth" referrals, certain selection biases may have impacted the data in ways that cannot be ruled out as they could with randomized selection. Additionally, the sample was relatively homogeneous (urban, predominantly lower income, predominantly African American). Although the findings generate informative conclusions regarding the structure of aggression within this sample, caution should be exercised in generalizing the current findings to groups representing other demographic compositions. Future research could expand upon the present findings by sampling a wider range of individuals, including younger and older individuals, individuals from different socioeconomic statuses and residential contexts, and individuals of different racial/ethnic backgrounds. Research could also explore the structure of aggression and relations with correlates among clinical populations of youth referred for aggression problems. Expanded research with different groups could also provide interesting information regarding developmental

influences on the structure and function of aggression. Some researchers have proposed that the types of aggression commonly exhibited by individuals may shift over the lifespan, following the developmental trajectories of skill development, moving from more directly physical actions to more indirect and non-confrontational actions (e.g., Lagerspetz et al., 1988). Related hypotheses might be tested among samples of youth from varying sociocultural contexts to examine the relative influences of developmental status and culture on confrontation versus avoidance of conflict.

Although the developmental context of adolescence is a particularly relevant time for the study of relational aggression, the current study was unable to examine developmental trends in aggression. The emphasis during the adolescent period on social context and group dynamics (Yoon et al., 2004), paired with the emotional development of this period (Rosenblum & Lewis, 2003) contributes to the relevance of studying forms of aggression with relational vehicles of harm. Further, the cognitive development characteristic of adolescence, including the development of metacognition, multiple perspective-taking, cognitive relativism, and improved formal logic (Byrnes, 2003), suggests the possibility of increasing sophistication with which aggressive attacks may be implemented. Given these developmental considerations, future research should study confrontational, non-confrontational, physical, and relational aggression longitudinally to better understand the impact of social, emotional, and cognitive changes on the types of aggression exhibited and the associations of those aggression subtypes with relevant outcome variables over time.

As previously noted, the socioecological context in which youth's aggression is embedded may be an important area for future research to improve understandings of the roles of values, social networks, peer norms, social-ecological factors, and psychological factors on the structures and functions of aggression and other problem behaviors. Qualitative research designs might be particularly useful for capturing the broad context in which these various types of aggression occur. Such qualitative research might also be able to improve upon the items comprising the CANAS insofar as youth could evaluate the relevance of the specific items within their cultural contexts, offer feedback on item wording, and generate improved alternatives for pilot testing. Although the current items were generated following extensive reviews of the literature and consultation with experts in the field, much of that work has been completed on samples of primarily suburban and rural Caucasian youth (e.g., Crick, 1997; Crick & Grotpeter, 1995; Xie, Cairns, et al., 2002), which represents a significant limitation of the current scale's conceptualization.

Another major limitation of the current study is that none of the models evaluated reached objective standards for goodness of fit, and therefore had to be evaluated on a comparative basis. If, as suggested, qualitative research clarified specific areas for improvement with the current item pool, then future work might attempt to replicate the current study with newly revised items to determine whether those revisions impacted the fit of the models. Additionally, other statistical methods might be employed using the current data, such as Item Response Theory (IRT), to better differentiate error with respect to item characteristics (DeVellis, 2003). Future work might also be designed to

further examine the axes of vehicle of harm and mechanism of action by including verbal aggression and non-confrontational items with physical vehicles of harm (e.g., getting someone else to fight an adversary for you, surreptitiously pushing or "bumping into" someone in a hallway, secretly sabotaging someone's belongings, etc.). If, for example, the current scale has not adequately sampled the domain within this specific context, then future work might clarify the shortcomings of the current conceptualization.

The current study conceptualized physical aggression, confrontational relational aggression, and non-confrontational relational aggression as distinct domains at the item creation level. However, additional domains of interest might be relevant for future research. For example, "rational-appearing" aggression (Björkqvist et al., 1994, p.31) has been proposed as a form of aggression common among adult females, suggesting that the constructs of covert manipulation and intentionality of action may be important for consideration. Any such conceptualization, however, would need to account for what is considered "rational" within the given cultural context being studied. When considering the notion of intentionality of action, evaluation of proactive versus reactive aggression styles might offer additional insight into the use of these subtypes of aggression and the types of maladaptive or adaptive outcomes with which they are associated. Proactive, premeditated, or instrumental aggression has been characterized as a "tool for solving problems or for obtaining a variety of objectives" (Ramírez & Andreu, 2006, p. 276), and as such might be related to social intelligence and rational-appearing aggression in which non-confrontational attacks are clearly planned and orchestrated with care. Students' values and beliefs about the effectiveness of aggression as a tool for solving problems

might also be an interesting area to explore in this regard. In contrast, reactive or hostile aggression has been characterized as "primarily oriented to hurt another individual" (Ramírez & Andreu, 2006, p. 276), and might be associated with more impulsive use of physical or other confrontational actions and less characteristic of the delayed enactment of aggressive strategy more common to the non-confrontational rational-appearing aggression subtype.

The present research represents an important initial step toward better understanding types of aggression utilized by youth and correlates of these various forms of aggression. However, the ultimate goal of such research is to better inform the development and implementation of prevention and intervention efforts, and future work is needed in that regard. It is important to understand the structure of aggression for the conceptualization phase of an intervention, but future work is needed to more clearly explicate the ways that the current study's findings might be used to tailor intervention programs effectively. For example, one hypothesis might be that the three forms of aggression proposed by this study (non-confrontational relational, confrontational relational, and physical) operate sequentially. This hypothesis would imply that a non-confrontational relational action could fuel a relationally confrontational exchange, which in turn might escalate to a physical altercation. If future research supported this idea, then prevention work might target intervention at the earliest phase possible in this chain of events to reduce the risk of violent escalation. Future research on the cultural context and value system within which this aggression is embedded might evaluate the possibility that direct action and confrontation is valued among a young, urban, African American

sample. If such a value system exists, then intervention could be tailored to emphasize healthy alternatives to violence that still support the need for direct and assertive behavior. Finally, whereas the current study emphasized a preliminary exploration of aggression typologies, future research should examine risk and protective factors to better inform prevention and intervention efforts.

In conclusion, the current study presents a unique perspective on the defining constructs of vehicle of harm and mechanism of action in the categorization of aggression for boys and girls. Unique associations among these constructs and related adjustment indicators provide interesting directions for future research. Although the current study does have some specific limitations to its scope and interpretability, it offers a valuable first step in understanding the role of confrontation and type of harm used in aggressive acts by urban, African American youth. Future work should build upon this categorization structure and expand exploration of cultural values and norms to promote increased understanding of these constructs both within the urban, African American population and across other demographic groups. This research also offers valuable information for prevention and intervention efforts, and future research should expand upon this framework to improve prevention and intervention programs that target this population.

References

Achenbach, T. M., Dumenci, L., & Rescorla, L. A. (2002). Ten-year comparisons of problems and competencies for national samples of youth: Self, parent and teacher reports. *Journal of Emotional and Behavioral Disorders, 10,* 194-203.

Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology, 53,* 27-51.

Archer, J. & Coyne, S. M. (2005). An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review, 9,* 212-230.

Attar, B. K., Guerra, N. G. & Tolan, P. H. (1994). Neighborhood disadvantage, stressful life events, and adjustment in urban elementary-school children. *Journal of Clinical Child Psychology, 23*, 391-400.

Baker, J. A. (1998). The social context of school satisfaction among urban, low-income, African-American students. *School Psychology Quarterly, 13,* 25-44.

Barnow, S., Lucht, M., & Freyberger, H. (2005). Correlates of aggressive and delinquent conduct problems in adolescence. *Aggressive Behavior, 31,* 24-39.

Baron, R. A., & Richardson, D. R. (1994). *Human aggression, second edition.* New York: Plenum Press.

Bentler, P.M. (1992). On the fit of models to covariances and methodology to the Bulletin. *Psychological Bulletin, 112,* 400-404.

Berkowitz, L. (1993). *Aggression: Its Causes, Consequences, and Control.* Philadelphia: Temple University Press.

Bierman, K. L. (2004). *Peer Rejection: Developmental Processes and Intervention Strategies.* New York: Guilford Press.

Björkqvist, K., Lagerspetz, K. M. J., & Kaukiainen, A. (1992). Do girls manipulate and do boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior, 18*, 117-127.

Björkqvist, K., Österman, K., & Kaukiainen, A. (1992). The development of direct and indirect aggressive strategies in males and females. In K. Björkqvist & P. Niemelä (Eds.), *Of Mice and Women: Aspects of Female Aggression* (pp. 51-64). San Diego, CA: Academic Press, Inc.

115

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

Björkqvist, K., Österman, K., & Lagerspetz, K. M. J. (1994). Sex differences in covert aggression among adults. *Aggressive Behavior, 20,* 27-33.

Boxer, P., Goldstein, S. E., & Musher-Eizenman, D. (2005). Developmental issues in school-based aggression prevention from a social-cognitive perspective. *Journal of Primary Prevention, 26,* 383-400.

Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., et al., (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. *Developmental Psychology, 39,* 222-245.

Brook, J. S., Whiteman, M., Finch, S. J., & Cohen, P. (1996). Young adult drug use and delinquency: Childhood antecedents and adolescent mediators. *Journal of the American Academy of Child and Adolescent Psychiatry, 35,* 1584-1592.

Browne, M.W. & Cudeck, R. (1993). Alternative ways of assessing model fit. In: K.A. Bollen & J.S. Long (Eds.), *Testing Structural Equation Models.* Beverly Hills, CA: Sage.

Buss, A. H. (1961). *The psychology of aggression.* New York: John Wiley and Sons, Inc.

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

Byrnes, J. P. (2003). Cognitive development in adolescence. In G. R. Adams & M. D. Berzonsky (Eds.), *Blackwell Handbook of Adolescence* (pp. 227-246). Oxford, UK: Blackwell Publishing Ltd.

Cairns, R. B., Cairns, B. D., & Neckerman, H. J. (1989). Early school dropout: Configurations and determinants. *Child Development, 60,* 1437-1452.

Cairns, R. B., Cairns, B. D., Neckerman, H. J., Ferguson, L. L., & Gariépy, J. (1989). Growth and aggression: 1. Childhood to early adolescence. *Developmental Psychology, 25,* 320-330.

Casey-Cannon, S., Hayward, C., & Gowen, K. (2001). Middle-school girls' reports of peer victimization: Concerns, consequences, and implications. *Professional School Counseling, 5,* 138-147.

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

Creusere, M. (1999). Theories of adults' understanding and use of irony and sarcasm: Applications to and evidence from research with children. *Developmental Review, 19,* 213-262.

Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development, 67,* 2317-2327.

Crick, N. R. (1997). Engagement in gender normative versus nonnormative forms of aggression: Links to social-psychological adjustment. *Developmental Psychology, 33,* 610-617.

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,* 1003-1014.

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

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

Crick, N. R., Ostrov, J. M., & Werner, N. E. (2006). A longitudinal study of relational aggression, physical aggression, and children's social-psychological adjustment. *Journal of Abnormal Child Psychology, 34,* 131-142.

Crick, N. R., Werner, N. E., Casas, J. F., O'Brien, K. M., Nelson, D. A., Grotpeter, J. K., et al. (1999). Childhood aggression and gender: A new look at an old problem. In R. A. Dienstbier & D. Bernstein (Eds.), *Nebraska Symposium on Motivation: Gender and Motivation,* (pp. 75-141). Lincoln, NE: University of Nebraska Press.

Crick, N. R. & Zahn-Waxler, C. (2003). The development of psychopathology in females and males: Current progress and future challenges. *Development and Psychopathology, 15,* 719-742.

Deater-Deckard, K., Dodge, K. A., Bates, J. E., & Petit, G. S. (1998). Multiple risk factors in the development of externalizing behavior problems: Group and individual differences. *Development and Psychopathology, 10,* 469-493.

DeVellis, R. F. (2003). *Scale development: Theory and applications, 2nd ed.* Thousand Oaks: Sage.

Dishion, T. J., Nelson, S. E., & Bullock, B. M. (2004). Premature adolescent autonomy: Parent disengagement and deviant peer process in the amplification of problem behaviour. *Journal of Adolescence, 27,* 515-530.

Dishion, T. J., Nelson, S. E., Winter, C. E., & Bullock, B. M. (2004). Adolescent friendship as a dynamic system: Entropy and deviance in the etiology and course of male antisocial behavior. *Journal of Abnormal Child Psychology, 32,* 651-663.

Dishion, T. J. & Owen, L. D. (2002). A longitudinal analysis of friendships and substance use: Bidirectional influence from adolescence to adulthood. *Developmental Psychology, 38,* 480-491.

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

Eagly, A. H., & Steffen, V. J. (1986). Gender and aggressive behavior: A meta-analytic review of the social psychological literature. *Psychological Bulletin, 100,* 309-330.

Eder, D. & Kinney, D. A. (1995). The effect of middle school extracurricular activities on adolescents' popularity and peer status. *Youth & Society, 26,* 298-324.

Farrell, A. D., Kung, E. M., White, K. S., & Valois, R. F. (2000). The structure of self-reported aggression, drug use, and delinquent behaviors during early adolescence. *Journal of Clinical Child Psychology, 29,* 282-292.

Farrell, A. D., Sullivan, T. N., Esposito, L. E., Meyer, A. L. & Valois, R. F. (2005). A latent growth curve analysis of the structure of aggression, drug use, and delinquent behaviors and their interrelations over time in urban and rural adolescents. *Journal of Research on Adolescence, 15,* 179-204.

Farrington, D. P. (1986). Stepping stones to adult criminal careers. In D. Olweus, J. Block, & M. Radke-Yarrow (Eds.), *Development of antisocial and prosocial behavior: Research, theories, and issues* (pp. 359-384). New York: Academic.

Feiring, C., Deblinger, E., & Hoch-Espada, A. (2002). Romantic relationship aggression and attitudes in high school students: The role of gender, grade, and attachment and emotional styles. *Journal of Youth and Adolescence, 31,* 373-385.

Feshbach, N. D. (1969). Sex differences in children's modes of aggressive responses toward outsiders. *Merrill-Palmer Quarterly of Behavior and Development, 15,* 249-258.

Feshbach, N. D. & Feshbach, S. (1969). The relationship between empathy and aggression in two age groups. *Developmental Psychology, 1,* 102-107.

Feshbach, N. D., & Sones, G. (1971). Sex differences in adolescent reactions toward newcomers. *Developmental Psychology, 4,* 381-386.

Flanagan, R. (1995). A review of the Behavior Assessment System for Children (BASC): Assessment consistent with the requirements of the Individuals with Disabilities Education Act (IDEA). *Journal of School Psychology, 33,* 177-186.

Floyd, F. J. & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7,* 286-299.

Foshee, V. A. (1996). Gender differences in adolescent dating abuse prevalence, types and injuries. *Health Education Research, 11,* 275-286.

Galambos, N. L. (2004). Gender and gender role development in adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of Adolescent Psychology* (pp. 233-262). Hoboken, NJ: John Wiley & Sons.

Galen, B. R., & Underwood, M. K. (1997). A developmental investigation of social aggression among children. *Developmental Psychology, 33,* 589-600.

Giancola, P. R., & Parker, A. M. (2001). A six-year prospective study of pathways toward drug use in adolescent boys with and without a family history of a substance use disorder. *Journal of Studies on Alcohol, 62,* 166-178.

Giles, J. W. & Heyman, G. D. (2005). Young children's beliefs about the relationship between gender and aggressive behavior. *Child Development, 76,* 107-121.

Goldstein, S. E., & Tisak, M. S. (2004). Adolescents' outcome expectancies about relational aggression within acquaintanceships, friendships, and dating relationships. *Journal of Adolescence, 27,* 283-302.

Gorman-Smith, D., Henry, D. B., & Tolan, P. H. (2004). Exposure to community violence and violence perpetration: The protective effects of family functioning. *Journal of Clinical Child and Adolescent Psychology, 33,* 439-449.

Gottman, J. & Mettetal, G. (1986). Speculations about social and affective development: Friendship and acquaintanceship through adolescence. In J. Gottman & J. Parker (Eds.), *Conversations of friends: Speculations on affective development* (pp. 192-237). London: Cambridge University Press.

Graumann, C. F. (1998). Verbal discrimination: A neglected chapter in the social psychology of aggression. *Journal for the Theory of Social Behaviour, 28,* 41-61.

Grimes, C. L., Putallaz, M., Miller-Johnson, S., Killeya-Jones, L., Foster, K., & Golonka, M. (2005, May). *Relational aggression in adolescent girls: Links to social influence and risk factors.* Poster presented at the 13th Annual Society for Prevention Research Meeting, Washington D.C.

Grotpeter, J. K. & Crick, N. R. (1996). Relational aggression, overt aggression, and friendship. *Child Development, 67,* 2328-2338.

Harré, R., & Lamb, R. (1986). *The dictionary of personality and social psychology.* Oxford: Basil Blackwell Ltd.

Henington, C., Hughes, J. N., Cavell, T. A., & Thompson, B. (1998). The role of relational aggression in identifying aggressive boys and girls. *Journal of School Psychology, 36,* 457-477.

Huesmann, L. R., Eron, L. D., & Lefkowitz, M. M. (1984). Stability of aggression over time and generations. *Developmental Psychology, 20,* 1120-1134.

Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth.* New York: Academic.

Kaukiainen, A., Björkqvist, K., Lagerspetz, K., Österman, K., Salmivalli, C., Rothberg, S., & Ahlbom, A. (1999). The relationships between social intelligence, empathy, and three types of aggression. *Aggressive Behavior, 25,* 81-89.

Kaukiainen, A., Björkqvist, K., Österman, K., Lagerspetz, K., & Forsblom S. (1995). *Peer-estimated social intelligence.* Turku, Finland: University of Turku, Department of Psychology.

Keppel, G. (1991). *Design and analysis: A researcher's handbook.* New Jersey: Prentice-Hall, Inc.

Kishton, J. M., & Widaman, K. F. (1994). Unidimensional versus domain representative parceling of questionnaire items: An empirical example. *Educational and Psychological Measurement, 54,* 757-765.

Kliewer, W. (2003). *Youth Drug Use, Violence Exposure, and Physiology.* National Institute on Drug Abuse, National Institutes of Health (Grant #5K01 DA015442).

Lagerspetz, K. M. J., Björkqvist, K., & Peltonen, T. (1988). Is indirect aggression typical of females? Gender differences in aggressiveness in 11- to 12-year-old children. *Aggressive Behavior, 14,* 403-414.

Linder, J. R., Crick, N. R., & Collins, W. A. (2002). Relational aggression and victimization in young adults' romantic relationships: Associations with perceptions of parent, peer, and romantic relationship quality. *Social Development, 11,* 69-86.

Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling, 9,* 151-173.

Maccoby, E. E. (2004). Aggression in the context of gender development. In M. Putallaz & K. L. Bierman (Eds.), *Aggression, Antisocial Behavior, and Violence Among Girls: A Developmental Perspective* (pp. 3-22). New York: Guilford Press.

Maisto, S. A., Conigliaro, J., McNeil, M., Kraemer, K., & Kelley, M. E. (2000). An empirical investigation of the factor structure of the AUDIT. *Psychological Assessment, 12,* 346-353.

Mercy, J., Butchart, A., Farrington, D., & Cerdá, M. (2002). Youth violence. Retrieved May 21, 2006, from *http://www.cdc.gov/ncipc/factsheets/yvoverview.htm.*

Mercy, J. A., Krug, E. G., & Dahlberg, L. L. (2003). Violence and health: The United States in a global perspective. *American Journal of Public Health, 93,* 256-261.

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

Miller-Johnson, S., Moore, B. L., Underwood, M. K., & Coie, J. D. (2005). African-American girls and physical aggression: Does stability of childhood aggression predict later negative outcomes? In D. J. Pepler, K. C. Madsen, C. Webster, & K. S. Levene (Eds.), *The Development and Treatment of Girlhood Aggression* (pp. 75-95). Mahwah, NJ: Lawrence Earlbaum Associates, Inc.

Moffitt, T. E. & Caspi, A. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Development and Psychopathology, 13,* 355-375.

Moffitt, T. E., Caspi, A., Harrington, H., & Milne, B. J. (2002). Males on the life-course persistent and adolescence-limited antisocial pathways: Follow-up at age 26 years. *Development and Psychopathology, 14,* 179-207.

Multisite Violence Prevention Project (2004). *Description of measures: Cohort-wide student survey.* Available from the Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Atlanta, GA. (Unpublished).

Muthen, L. K., & Muthen, B. O. (1998). *Mplus user's guide.* Los Angeles, CA: Muthen & Muthen.

Oetting, E. R., & Beauvais, F. (1990). Adolescent drug use: Findings of national and local surveys. *Journal of Consulting and Clinical Psychology, 58,* 385-394.

Österman, K., Björkqvist, K., Lagerspetz, K. M. J., Kaukiainen, A., Landau, S. F., Frączek, A., et al. (1998). Cross-cultural evidence of female indirect aggression. *Aggressive Behavior, 24,* 1-8.

Park, J. H., Essex, M. J., Zahn-Waxler, C., Armstrong, J. M., Klein, M. H., & Goldsmith, H. H. (2005). Relational and overt aggression in middle childhood: Early child and family risk factors. *Early Education & Development, 16,* 233-257.

Pepler, D. J., Madsen, K. C., Webster, C., & Levene, K. S. (2005). *The Development and Treatment of Girlhood Aggression.* Mahwah, NJ: Lawrence Erlbaum Associates.

Prelow, H. M., Danoff-Burg, S., Swenson, R. R. & Pulgiano, D. (2004). The impact of ecological risk and perceived discrimination on the psychological adjustment of African American and European American youth. *Journal of Community Psychology, 32,* 375-389.

Prinstein, M. J., Boergers, J., & Vernberg, E. M. (2001). Overt and relational aggression in adolescents: Social-psychological adjustment of aggressors and victims. *Journal of Clinical Child Psychology, 30,* 479-491.

Prinstein, M. J. & Cillessen, A. H. N. (2003). Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly, 49,* 310-342.

Putallaz, M., Kupersmidt, J. B., Coie, J. D., McKnight, K., & Grimes, C. L. (2004). A behavioral analysis of girls' aggression and victimization. In M. Putallaz & K. L. Bierman (Eds.), *Aggression, Antisocial Behavior, and Violence among Girls: A Developmental Perspective* (pp. 110-134). New York: Guilford Press.

Raftery, A. E. (1993) Bayesian model selection in structural equation models. In K. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 163-180). Newbury Park: Sage Publication.

Ramírez, J. M., & Andreu, J. M. (2006). Aggression, and some related psychological constructs (anger, hostility, and impulsivity): Some comments from a research project. *Neuroscience & Biobehavioral Reviews, 30,* 276-291.

Reynolds, G. R. & Kamphaus, R. W. (1992). *Manual: Behavior Assessment System for Children.* Circle Pines, MN: American Guidance Service.

Richardson, D. R., & Green, L. R. (1999). Social sanction and threat explanations of gender effects on direct and indirect aggression. *Aggressive Behavior, 25,* 425-434.

Richardson, D. S., & Green, L. R. (2003). Defining direct and indirect aggression: The Richardson conflict response questionnaire. *Revue Internationale de Psychologie Sociale, 16,* 11-30.

Rosenblum, G. D. & Lewis, M. (2003). Emotional development in adolescence. In G. R. Adams & M. D. Berzonsky (Eds.), *Blackwell Handbook of Adolescence* (pp. 269-289). Oxford, UK: Blackwell Publishing Ltd.

Rys, G. S., & Bear, G. G. (1997). Relational aggression and peer relations: Gender and developmental issues. *Merrill-Palmer Quarterly, 43,* 87-106.

Salmivalli, C., & Kaukiainen, A. (2004). "Female aggression" revisited: Variable- and person-centered approaches to studying gender differences in different types of aggression. *Aggressive Behavior, 30,* 158-163.

Salmivalli, C., Kaukiainen, A., & Lagerspetz, K. (2000). Aggression and sociometric status among peers: Do gender and type of aggression matter? *Scandinavian Journal of Psychology, 41,* 17-24.

Simmons, R. (2002). *Odd Girl Out: The Hidden Culture of Aggression in Girls.* Orlando, FL: Harcourt, Inc.

Smorti, A., Menesini, E., & Smith, P. K. (2003). Parents' definitions of children's bullying in a five-country comparison. *Journal of Cross-Cultural Psychology, 34,* 417-432.

Storch, E. A., Bagner, D. M., Geffken, G. R., & Baumeister, A. L. (2004). Association between overt and relational aggression and psychosocial adjustment in undergraduate college students. *Violence and Victims, 19,* 689-700.

Storch, E. A., Werner, N. E., & Storch, J. B. (2003). Relational aggression and psychosocial adjustment in intercollegiate athletes. *Journal of Sport Behavior, 26,* 155-167.

Sullivan, T. N., Farrell, A. D., & Kliewer, W. (2006). Peer victimization in early adolescence: Association between physical and relational victimization and drug use, aggression, and delinquent behaviors among urban middle school students. *Development and Psychopathology, 18,* 119-137.

Tiet, Q. Q., Wasserman, G. A., & Loeber, R. (2001). Developmental and sex differences in types of conduct problems. *Journal of Child and Family Studies, 10,* 181-197.

Tomada, G. & Schneider, B. H. (1997). Relational aggression, gender, and peer acceptance: Invariance across culture, stability over time, and concordance among informants *Developmental Psychology, 33,* 601-609.

Tremblay, R. E., Hartup, W. W., & Archer, J. (Eds.) (2005). *Developmental Origins of Aggression.* New York: Guilford Press.

Underwood, M. K. (2003). *Social Aggression Among Girls.* New York: Guilford Press.

Vernberg, E. M., Jacobs, A. K., & Hershberger, S. L. (1999). Peer victimization and attitudes about violence during early adolescence. *Journal of Clinical Child Psychology, 28,* 386-395.

Viemerö, V. (1992). Changes in patterns of aggressiveness among Finnish girls over a decade. In K. Björkqvist & P. Niemelä (Eds.), *Of Mice and Women: Aspects of Female Aggression* (pp. 99-106). San Diego, CA: Academic Press, Inc.

White, H. R., Brick, J., & Hansell, S. (1993). A longitudinal investigation of alcohol use and aggression in adolescence. *Journal of Studies on Alcohol, 54, Suppl. 11,* 62-77.

Xie, H., Cairns, B. D., & Cairns, R. B. (2001). Predicting teen motherhood and teen fatherhood: Individual characteristics and peer affiliations. *Social Development, 10,* 488-511.

Xie, H., Cairns, B. D., & Cairns, R. B. (2005). The development of aggressive behaviors among girls: Measurement issues, social functions, and differential trajectories. In D. Pepler, K. Madsen, C. Webster, & K. Levene (Eds.), *The development and treatment of girlhood aggression* (pp. 105-136). New Jersey: Lawrence Earlbaum Associates.

Xie, H., Cairns, R. B., & Cairns, B. D. (2002). The development of social aggression and physical aggression: A narrative analysis of interpersonal conflicts. *Aggressive Behavior, 28,* 341-355.

Xie, H., Farmer, T. W., & Cairns, B. D. (2003). Different forms of aggression among inner-city African-American children: Gender, configurations, and school social networks. *Journal of School Psychology, 41,* 355-375.

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

Yoon, J. S., Barton, E., & Taiariol, J. (2004). Relational aggression in middle school: Educational implications of developmental research. *Journal of Early Adolescence, 24,* 303-318.

Zahn-Waxler, C., Park, J., Essex, M., Slattery, M., & Cole, P. M. (2005). Relational and overt aggression in disruptive adolescents: Prediction from early social representations and links with concurrent problems. *Early Education & Development, 16,* 259-282.

Zillmann, D. (1979). *Hostility and Aggression.* Hillsdale, NJ: Lawrence Earlbaum Associates, Inc.

Zimmer-Gembeck, M. J., Geiger, T. C., & Crick, N. R. (2005). Relational and physical aggression, prosocial behavior, and peer relations: Gender moderation and bidirectional associations. *Journal of Early Adolescence, 25,* 421-452.

Appendices

Appendix A

Confrontational and Non-Confrontational Aggression Scale (CANAS).

Source: Physical Aggression subscale taken exclusively from Farrell, A. D., Kung, E. M., White, K. S., & Valois, R. F. (2000). The structure of self-reported aggression, drug use, and delinquent behaviors during early adolescence. *Journal of Clinical Child Psychology, 29,* 282-292. Portions of Confrontational and Non-Confrontational Relational Aggression subscales taken from Farrell et al., 2000. See Method section for full explanation of relational aggression item development.

Response Format: The following 6-point scale is used for all the items: 0 = *never*, 1 = *1-2 times*, 2 = *3-5 times*, 3 = *6-9 times*, 4 = *10-19 times*, 5 = *20 or more times*.

Scale Instructions: We are interested in how often students your age do different kinds of things. Think about how often you have done the following things in the last 30 days. Circle the number choice for your answer to each question. Remember, your answers are private and will not be shared with anyone. In the last 30 days, how many times have you...

Physical Aggression Subscale
1. Thrown something at someone to hurt them
2. Been in a fight in which someone was hit
3. Threatened to hurt a teacher
4. Shoved or pushed another kid
5. Threatened someone with a weapon (gun, knife, club, etc.)
6. Hit or slapped another kid
7. Threatened to hit or physically harm another kid

Confrontational Relational Aggression Subscale
1. Told another kid that they couldn't join your group when they asked to
2. Ignored another kid when they approached your group
3. Started whispering about another kid and pointing at them when they walked by
4. Gave mean looks to another student
5. Told another kid you wouldn't like them unless they did what you wanted them to do
6. Told another kid you would tell their "private" information unless they did what you wanted them to do
7. Tried to make a kid look bad by sharing their "private" information when you were with them and a group of other kids
8. Rolled your eyes and glared at another kid

Non-Confrontational Relational Aggression Subscale
1. Told kids in your group not to let someone be part of your group anymore
2. Spread a false rumor about someone
3. Said things about a kid behind their back to hurt their reputation with other kids
4. Passed a hurtful note or e-mail about another kid
5. Secretly tried to take away a boyfriend or girlfriend that your friend was already going with
6. "Dropped" a friend and made a new friend to get back at them
7. Told a kid something untrue about their friend to secretly harm their friendship
8. Gone behind a kid's back and shared their private information with other kids to make them look bad

Appendix B

Delinquency subscale of the Problem Behavior Frequency Scales (PBFS)

Source: Farrell, A. D., Kung, E. M., White, K. S., & Valois, R. F. (2000). The structure of self-reported aggression, drug use, and delinquent behaviors during early adolescence. *Journal of Clinical Child Psychology, 29,* 282-292.

Response Format: The following 6-point scale is used for all the items: 0 = *never*, 1 = *1-2 times*, 2 = *3-5 times*, 3 = *6-9 times*, 4 = *10-19 times*, 5 = *20 or more times*.

Scale Instructions: We are interested in how often students your age do different kinds of things. Think about how often you have done the following things in the last 30 days. Circle the number choice for your answer to each question. Remember, your answers are private and will not be shared with anyone. In the last 30 days, how many times have you...

Delinquency Subscale
1. Been on suspension
2. Stolen something from another student
3. Snuck into someplace without paying, such as into the movies or onto a bus
4. Skipped school
5. Cheated on a test
6. Taken something from a store without paying for it (shoplifted)
7. Written things or sprayed paint on walls, sidewalks, or cars where you were not supposed to
8. Damaged school or other property that did not belong to you

Appendix C

Peer Deviancy Scale

Source: Multisite Violence Prevention Project (2004). *Description of measures: Cohort-wide student survey.* Available from the Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Atlanta, GA. (Unpublished).

Response Format: The following 5-point scale is used for all the items: 0 = *None of Them*, 1 = *Few of Them*, 2 = *Half of Them*, 3 = *Most of Them*, 4 = *All of Them*.

Scale Instructions: The next questions are about different things your friends may have done. Circle the number that goes with how many of your friends have done the following things during the past year. The number 0 means that none of your friends have done the thing, 1 means that few of your friends have done it, 2 means that half of your friends have done it, 3 means most of your friends have done it, and 4 means that all of your friends have done it. During the past year, how many of your friends have...

Peer Deviancy Scale
1. Skipped school without an excuse
2. Lied, disobeyed, or talked back to adults such as parents, teachers, or others
3. Purposely damaged or destroyed property that did not belong to them
4. Stolen something worth less than $5
5. Stolen something worth more than $5 but less than $100
6. Stolen something worth more than $100
7. Gone into or tried to go into a building to steal something
8. Gone joyriding, that is, taken a motor vehicle such as a car or motorcycle for a ride or drive without the owner's permission
9. Hit someone with the idea of hurting that person
10. Attacked someone with a weapon or with the idea of seriously hurting that person
11. Used a weapon, force, or strongarm methods to get money or things from people
12. Sold hard drugs such as heroin, cocaine, or LSD
13. Used alcohol
14. Used marijuana or hashish
15. Used hard drugs such as heroin, cocaine, or LSD

Appendix D

Drug Use subscale of the Problem Behavior Frequency Scales (PBFS)

Source: Farrell, A. D., Kung, E. M., White, K. S., & Valois, R. F. (2000). The structure of self-reported aggression, drug use, and delinquent behaviors during early adolescence. *Journal of Clinical Child Psychology, 29,* 282-292.

Response Format: The following 6-point scale is used for all the items: 0 = *never*, 1 = *1-2 times*, 2 = *3-5 times*, 3 = *6-9 times*, 4 = *10-19 times*, 5 = *20 or more times.*

Scale Instructions: We are interested in how often students your age do different kinds of things. Think about how often you have done the following things in the last 30 days. Circle the number choice for your answer to each question. Remember, your answers are private and will not be shared with anyone. In the last 30 days, how many times have you...

Drug Use Subscale
1. Drunk beer (more than a sip or taste)
2. Drunk wine or wine coolers (more than a sip or taste)
3. Smoked cigarettes
4. Been drunk
5. Drunk liquor (like whiskey or gin)
6. Used marijuana (pot, hash, reefer)

Appendix E

Youth-Estimated Social Intelligence Scale

Source: Adapted from the Peer-Estimated Social Intelligence Scale (PESI), Kaukiainen, A., Björkqvist, K., Österman, K., Lagerspetz, K., & Forsblom S. (1995). *Peer-estimated social intelligence*. Turku, Finland: University of Turku, Department of Psychology.

Response Format: The following 5-point scale is used for all the items: 0 = *Never*, 1 = *Seldom*, 2 = *Occasionally*, 3 = *Often*, 4 = *Very Often*.

Scale Instructions: The next questions ask you about the ways you interact with others. Please tell me the answer that best describes how often do the following things happen?

Youth-Estimated Social Intelligence Scale
1. You notice easily if others lie
2. You are able to get along with other people
3. You fit in easily with new people and new situations
4. You are able to get your wishes carried out
5. You are able to guess the feelings of others, even when they don't want to show them
6. You are aware of the weak spots of others
7. You know how to get others to laugh
8. You are able to persuade others to do almost anything
9. You are able to take advantage of others if you want to
10. You are able to talk others into taking your side

Vita

Sarah Wray Helms was born on January 15, 1980, in Roanoke, Virginia. She graduated from Patrick Henry High School in Roanoke, Virginia in 1998. She received her Bachelor of Arts in Psychology with a minor in Education from Wake Forest University in Winston-Salem, North Carolina in 2002, where she graduated Summa Cum Laude. She began her graduate training in Clinical and Developmental Psychology at Virginia Commonwealth University in Richmond, Virginia in 2005, and will earn a Master of Science in May 2007. Sarah Helms is currently a doctoral candidate in the Clinical and Developmental Psychology programs at Virginia Commonwealth University.