

A Review and Reconceptualization of Social Aggression: Adaptive and Maladaptive Correlates

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Abstract The emergence of a research literature exploring parallels between physical and nonphysical (i.e., social, relational, indirect) forms of aggression has raised many questions about the developmental effects of aggressive behavior on psychological functioning, peer relationships, and social status. Although both forms of aggression have been linked to problematic outcomes in childhood and adolescence, more recent findings have highlighted the importance of considering the possible social rewards conferred by socially aggressive behavior. This paper examines relevant theory and empirical research investigating the adaptive and maladaptive correlates specific to nonphysical forms of aggression. Findings are explored at the level of group (e.g., peer rejection), dyadic (e.g., friendship quality), and individual (e.g., depressive symptoms) variables. Key developmental considerations and methodological issues are addressed, and recommendations for future research integrating current theoretical conceptualizations and empirical findings on social aggression are advanced.

Keywords Social aggression · Relational aggression · Adaptation · Peer relationships · Social status

Introduction

Perhaps one of the most pressing concerns examined in clinical child psychology pertains to the predictors and consequences of aggressive behavior. Over the past three

decades, a considerable empirical literature has demonstrated associations between physical aggression and various indices of social incompetence, including social-cognitive biases, social skill deficits, and peer rejection (e.g., Dodge 1983; Lochman and Dodge 1998). Numerous longitudinal studies have identified childhood physical aggression as a risk factor for a variety of deleterious outcomes, including future delinquency, criminal activity, school dropout, and substance use during adolescence and adulthood (e.g., Broidy et al. 2003; Nagin and Tremblay 1999; Patterson et al. 1991). Given that treatment of anti-social and aggressive behavior represents a primary cause of referral to inpatient and outpatient clinics for adolescents, knowledge of the adverse correlates and consequences of aggression is critical for informing effective intervention and prevention programs (Barkley and Connor 2002).

Although physical behaviors have been the focus of the majority of research efforts on aggression, recent interest in the constructs of social, relational, and indirect aggression has prompted a reexamination of the form, function, and operationalization of aggressive behavior (Underwood 2003). Indeed, over the past 15 years there has been a dramatic increase in the number of studies aimed at understanding nonphysical forms of aggression. Whereas physical and verbal aggression involve overt behaviors such as inflicting or threatening physical harm, social, relational, or indirect forms of aggression are defined in terms of behaviors aimed at causing social or interpersonal harm through overt or covert means. The earliest studies of this broadened conceptualization revealed that nonphysical aggression (e.g., snubbing, ignoring) was experienced as hurtful by victims (Feshbach 1969; Feshbach and Sones 1971). Research demonstrating similar deleterious consequences of nonphysical forms of aggression has rapidly

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proliferated in the past decade (e.g., Crick 1997; Crick and Grotpeter 1996; Galen and Underwood 1997). However, empirical work on these topics may have outpaced the development of theory needed to guide this research in the most productive directions.

Purposes of the Present Review

This review was motivated by the central hypothesis that socially aggressive behaviors may be associated with both adaptive and maladaptive social-psychological correlates. Although this hypothesis is by no means entirely novel, it is striking that the conceptualization of aggression as a form of psychopathology continues to dominate the empirical literature on social aggression (see Smith 2007, for a review). There are notable exceptions to this emphasis on the “dark side” of aggressive behavior (e.g., Hawley et al. 2007b); however, findings from studies of concurrent and longitudinal correlates of social aggression have yet to be systematically reviewed. Accordingly, this paper seeks to address this gap in the literature in an effort to underscore the importance of considering potential adaptive correlates of social aggression and thereby advance a more balanced conceptualization.

To explore specific questions related to the aforementioned hypothesis, at least two key issues must be addressed. First, there remains considerable confusion regarding the nomenclature used to describe social types of aggressive behaviors. Second, work on nonphysical forms of aggression has remained relatively detached from theoretical advances that have been widely adopted regarding the psychological mechanisms of physically aggressive behavior. Accordingly, the purposes of the present review are: (a) to outline basic strategies used to define social forms of aggression; (b) to review several key theories developed predominantly in reference to physical aggression; and (c) to explore the applicability of such theoretical perspectives to socially aggressive behaviors. To further examine these issues from an empirical perspective, findings from the extant literature on adaptive and maladaptive longitudinal correlates of social aggression in group-, dyadic-, and individual-level contexts are reviewed.

This approach is consistent with a longstanding tradition of examining peer effects in multiple social and interpersonal contexts (Hartup 1996). Group-level peer experiences are focused on peer experiences and reputations within the overall social context (such as peer acceptance/rejection or peer-perceived popularity). Dyadic-level peer experiences include participation in friendships, friendship stability, and the positive and negative friendship qualities of these relationships. Lastly, individual-level correlates refer to any cognitive (e.g., attributional bias), affective (e.g., depressed

mood), or behavioral (e.g., externalizing behavior) outcomes that may be related to psychosocial adjustment.

Review of Definitions

As research on nonphysical forms of aggressive behavior has rapidly expanded over the past decade, theorists have lamented the definitional obfuscation that now characterizes work in this area. Therefore, it may be instructive to begin by clarifying underlying differences in constructs referred to as social, relational, and indirect aggression. Social aggression refers to behaviors that intentionally damage interpersonal relationships and/or social status through nonconfrontational and generally concealed methods (Galen and Underwood 1997; Underwood 2003). These behaviors typically require the involvement of members of the social community (e.g., gossip, social exclusion, ostracism, negative facial expressions; Cairns et al. 1989; Galen and Underwood 1997; Paquette and Underwood 1999). This broad definition is designed to include both direct and indirect behaviors, verbal and nonverbal social exclusion, malicious gossip, and friendship manipulation (Underwood 2003).

Though similar to social aggression, the construct of relational aggression has subtle, but important distinctions. Relationally aggressive behaviors also are defined as behaviors that cause social rather than physical harm; however, relationally aggressive behavior primarily involves the direct manipulation of peer relationships and by definition, does not include negative facial expressions or gestures (Crick 1995, 1997; Crick and Grotpeter 1995). These behaviors may be confrontational (e.g., publicly excluding a peer from the social group) or nonconfrontational (e.g., character defamation), and may or may not involve members of the social community. Individual differences in relational aggression are typically assessed with peer nomination methods (e.g., Crick and Grotpeter 1995). Several factor analytic studies report evidence that the behaviors used to define social and relational aggression cluster together (Björkqvist et al. 1992a; Crick and Grotpeter 1995). That said, this issue has been confounded by measurement and methodological constraints, and therefore continues to be a subject of considerable debate within the literature (e.g., Archer and Coyne 2005; Björkqvist et al. 1992a; Crick and Grotpeter 1995; Underwood 2003).

Lastly, indirect aggression broadly refers to behaviors that may be covert (i.e., the aggressor does not intend to be known to the victim), such as ignoring, avoiding, or excluding others from social interactions (Björkqvist et al. 1992a; Lagerspetz et al. 1988). This terminology was first introduced by Feshbach (1969) and Feshbach and Sones (1971) to define the behavior of individuals who snubbed a

newcomer during a laboratory observation session. Lagerspetz and colleagues later adopted the term to refer to behavioral strategies that allow the aggressor to cause harm without being identified by the victim (e.g., Björkqvist et al. 1992b; Lagerspetz and Björkqvist 1994; Lagerspetz et al. 1988). Indirect aggression is distinct from social aggression because the perpetrator does not necessarily employ other members of the peer group in the aggressive act and refers specifically to nonconfrontational behaviors (Xie et al. 2002, 2004). Perhaps because of this rather limiting definition of behavior, indirect aggression is the least frequently studied of the three forms.

Through the process of clarifying distinctions between social, relational, and indirect aggression, it is apparent that these constructs share an inherent definitional complexity that does not characterize physical aggression. Although there are similarities in the conceptualizations, semantic and definitional issues have plagued prior studies of social aggression. Given that the existing definition of social aggression represents the broadest of the three conceptualizations, this term is used for clarity and ease of presentation.

Emphases of Recent Research on Socially Aggressive Behaviors

In spite of the contentious debate among scholars as to what extent social, relational, and indirect aggression represent overlapping constructs, research linking nonphysical forms of aggression to indices of social-psychological maladjustment has made an impressive contribution to the scientific literature. Over the past decade, studies of children, adolescents, and young adults who are the targets of socially aggressive behaviors have demonstrated clear associations between this form of victimization and concurrent social and emotional difficulties (Crick et al. 2002a; Crick and Grotpeter 1996; Prinstein et al. 2001; Werner and Crick 1999). Moreover, experiences of relational aggression in childhood also have been implicated in the prediction of future maladjustment for both sexes (Crick 1996; Crick and Bigbee 1998; Crick et al. 1999a; Crick and Grotpeter 1995).

Research on the social-psychological adjustment of social aggressors is in its early stages; however, the evolution of the literature is notable for its emphasis on gender differences in the frequency of social aggression (e.g., Crick 1996; Crick and Grotpeter 1995). This emphasis has been, quite explicitly, designed to address a perceived bias of past research (Crick 1995). Specifically, this work has been motivated by a stated desire to demonstrate that socially aggressive behaviors are forms of maladjustment, or possibly psychopathology, that have gone unnoticed due

to a relative neglect of girls' mental health issues (Crick 2003; Crick et al. 1999b). As definitions of nonphysical aggression were expanded from obviously confrontational behaviors (e.g., social exclusion, rejection) to include more subtle behaviors (e.g., eye-rolling, gossip), many studies began to question whether forms of social aggression are more common among girls, and to what extent such behaviors correspond to the developmental trajectories of physically aggressive boys (e.g., Crick et al. 1996; Crick and Grotpeter 1995). Empirical findings support the contention that boys are more verbally and physically aggressive than girls (e.g., Coie et al. 1982; Crick and Grotpeter 1995), and that girls are more likely to use social rather than physically aggressive strategies to harm a target (see Crick et al. 1999b; Underwood 2002, for reviews). However, data are equivocal about whether girls are more socially aggressive than boys, with some studies finding evidence for this proposition (e.g., Crick and Grotpeter 1995; Lagerspetz et al. 1988; McNeilly-Choque et al. 1996), some finding no such gender differences (Hart et al. 1998; Pakaslahti and Keltikangas-Jaervinen 2000; Phillipson et al. 1999; Rys and Bear 1997; Willoughby et al. 2001) and still others finding that boys are more socially aggressive than girls (David and Kistner 2000; Henington et al. 1998; Tomada and Schneider 1997).

In addition to addressing the question of gender differences, the study of the development of social aggression has generated increasing interest among researchers. Whereas the earliest developmental studies were conducted using cross-sectional designs (e.g., Björkqvist et al. 1992a; Björkqvist et al. 1992b), more recent longitudinal studies (e.g., Côté et al. 2007; Vaillancourt et al. 2007) have provided an important contribution towards refining a developmental theory of social aggression. Indeed, longitudinal research is essential in order to understand developmental patterns of normative and atypical social aggression, and also to clarify the direction of effect between social aggression and social-psychological adjustment.

Although relatively few studies have tracked the emergence and maintenance of socially aggressive behaviors across developmental periods, there is some evidence that the behaviors may be reliably identified in preschool-age children (e.g., Crick et al. 2006a), and that engagement in social aggression increases from early to middle childhood (e.g., Cairns et al. 1989; Vaillancourt et al. 2007). The latter findings are consistent with the developmental theory of social aggression that was first posited by Björkqvist and colleagues (see Björkqvist et al. 1992a, b). Specifically, the Björkqvist model predicts that there are normative increases in social forms of aggression during middle childhood and corresponding decreases in the prevalence of physical forms of aggression. These theorized developmental trends are believed to parallel children's

development of more sophisticated verbal skills and awareness of the negative consequences associated with physically aggressive strategies. Moreover, there is some reason to believe that girls exhibit more social aggression than do boys during the preschool period (Crick et al. 2006a; Ostrov and Keating 2004), and there is preliminary support for the contention that girls are more likely than boys to show rising trajectories of social aggression during middle childhood (Vaillancourt et al. 2007). These findings are further supported by the results of Galen and Underwood (1997) who found that across grades 4, 7, and 10, girls exhibited an increase in their reports of the frequency of social aggression in response to hypothetical vignettes over time, whereas boys showed the opposite developmental trend. However, it is notable that this pattern of increasing socially aggressive behavior from late elementary through middle school was not observed in an observational study of social exclusion among 10-, 12-, and 14-year-old participants (Underwood et al. 2004).

Given that few studies have examined the stability of social aggression longitudinally, it would be premature to conclude that there is sufficient evidence to support the developmental model posited by Björkqvist and colleagues. Indeed, there remains limited information regarding intra-individual patterns of the development of social aggression in the context of physical aggression (Côté et al. 2007). In other words, it is unclear whether children who initially engage in physically aggressive strategies may, in effect, replace physical behaviors with social ones. Côté et al. (2007) found that approximately one-third of children in their sample demonstrated increasing levels of social aggression from early through middle childhood. Interestingly, a subset of children exhibited decreasing rates of physical aggression between the ages of 2 and 8 years and increasing rates of social aggression between the ages of 4 and 8 years (Côté et al. 2007). The authors suggested that this pattern may be indicative of heterotypic continuity in the development of aggression, or perhaps a general tendency to engage in moderately aggressive strategies that represent the most appropriate behavior at a given developmental stage (Côté et al. 2007). Furthermore, Côté et al. (2007) noted that there were few children between ages 4 and 8 who were high in social aggression and low in physical aggression, suggesting that it is uncommon for children to “specialize” in exclusively socially aggressive behaviors.

In sum, research to date has provided the groundwork for advancing conceptualizations of the socially aggressive behavior. Despite the lack of consensus about terminology, researchers have generated an important body of literature demonstrating that the construct captured within the definitions of indirect, social, and relational aggression represents a robust psychological phenomenon. Given that

the vast majority of studies have been informed by well-developed theoretical models of physical aggression in boys, research on social aggression generally has focused on identifying the maladaptive consequences associated with such behaviors and describing gender differences in how children aggress. Unfortunately, most research in this area has been based on untested assumptions regarding the nature of socially aggressive behaviors, and it is only relatively recently that studies have begun to employ longitudinal methods. As a consequence, research on social aggression largely has adopted theories and approaches from the physical aggression literature without careful consideration of whether behavior defined as socially aggressive truly meets established definitions of aggression. Although it is acknowledged that some ambiguity exists in considering the causes and consequences of any aggressive behavior, it is argued below that because of the varied manifestations and dependence on intangible, social (i.e., nonphysical) goals, social aggression is more difficult to characterize as ‘aggressive’ than has been suggested in past literature.

Questioning Basic Assumptions: Theoretical Conceptualizations of Aggression

The methods and constructs derived from the history of research on physical aggression have proven invaluable in extending our knowledge of socially aggressive behaviors; however, it has become clear that new models for defining and classifying social aggression are warranted (Underwood 2003; Underwood et al. 2001). Indeed, the focus on establishing parallels between the developmental psychopathology of physical aggression in boys and social aggression in girls may have obscured fundamental differences between the functions and potential clinical significance of these behaviors. As such, recent efforts to further our scientific understanding of the development of socially aggressive behavior have underscored the importance of questioning the emphasis on maladjustment (Hawley 2003a; Hawley et al. 2007a, b; Underwood 2003). To this end, there also are calls to explore whether existing definitions are perhaps overly inclusive of behaviors that have been prematurely and inaccurately deemed aggressive. Of particular importance are two key issues: (a) the inherent ambiguity of many behaviors currently defined as social aggression, and (b) the problems that arise from confounding how an individual aggresses (i.e., the form of the behavior) and why an individual aggresses (i.e., the function of the behavior). A discussion of these issues is provided below.

Aggressive behaviors typically are defined as such by meeting two basic definitional criteria. Specifically,

behavior qualifies as aggressive if it is intended to harm a target and the target perceives harm as a consequence of the aggressor's act (Coie and Dodge 1998; Harré and Lamb 1983; Parke and Slaby 1983). It may be argued that instances of physical aggression clearly meet these criteria. In contrast to social aggression, physically aggressive behaviors are generally defined by the behavior or action itself (e.g., hitting, punching). However, problems arise when applying these ideas to socially aggressive behavior. The definition of social aggression requires consideration of the social context and cannot easily be reduced to a set of observable behaviors. Behaviors currently included in contemporary definitions of socially aggressive behavior (e.g., eye-rolling, gossip, social exclusion) may represent emotional expression rather than behaviors directed towards a target. Moreover, these behaviors actually may serve prosocial, normative functions such as establishing greater intimacy between friends and establishing network boundaries. This contention is controversial because it questions a basic assumption of the conceptualization of social aggression as psychopathology. Although it is not suggested that socially aggressive behaviors are exclusively adaptive, it does appear that these behaviors present challenges to current classification systems of aggressive behavior.

In addition to these definitional issues, a remaining key issue pertains to the goals of aggressive behavior. Empirical research on physical aggression generally has supported the distinctiveness and differential predictive characteristics of behaviors that are reactive versus proactive (e.g., Day et al. 1992; Dodge 1991; Dodge and Coie 1987; Hartup 1974; Polman et al. 2007; Poulin and Boivin 1999, 2000; Price and Dodge 1989; Pulkkinen 1996). Attempts to apply this dichotomy to socially aggressive behaviors illustrate difficulties in current conceptualizations of the social aggression construct.

Reactive aggression is conceptualized as a response to antecedent conditions of provocation or frustration that tend to be interpersonal and hostile. (Dodge and Coie 1987). This notion is predicated on the long-studied frustration-aggression hypothesis (Dollard et al. 1939). This hypothesis posits that aggression is the natural behavioral outcome of an individual's experience of goal-blocking and frustration (Dollard et al. 1939). Revisionists (e.g., Berkowitz 1962, 1989) have modified the theory, restricting tests of the hypothesis to behaviors that are hostile rather than instrumental in nature, and to situations for which the resultant frustration stems from the failure to attain an anticipated gratification, rather than in situations of deprivation. Berkowitz (1989) further stipulates that frustration in response to aversive events only is likely to generate aggressive acts to the extent that the events themselves produce negative affect for the individual. In

the initial conceptualization of the frustration-aggression hypothesis, Dollard and colleagues proposed that in some cases, the threat of retaliation or punishment necessarily restricts the direct expression of aggression, but noted that this restriction does not change the motivation to aggress. Accordingly, certain situations may produce a displacement of the aggressive response in which the individual minimizes the threat of punishment by acting aggressively through more indirect channels.

There are several ways that the frustration-aggression hypothesis provides a useful framework for integrating existing conceptualizations of reactive forms of social aggression. From a theoretical perspective, social aggression might function as an outlet for the expression of anger in the context of reduced likelihood of damaging retaliation or punishment. To the extent that this may be true, it follows that there are obvious advantages to using social aggression in the expression of negative affect. For example, physical assaults and threats of such assaults are socially unacceptable and punishable by law, whereas most acts of social aggression (e.g., peer exclusion) have much less potential for serious legal consequences. Moreover, because social forms of aggression do not necessarily identify the aggressor, it is possible to minimize the potential for retaliation from the victim, reduce the chances of being punished for the negative behavior by authority figures, and avoid appearing mean while harming other people's relationships (Merten 1997; Xie et al. 2002b). Thus, conceptualized as a skillful form of anger expression, social aggression represents a potentially adaptive form of reactive aggression that theoretically might have concurrent associations with high levels of social competence.

In addition to the possibility that social aggression presents opportunities to skillfully express anger with reduced fear of recrimination, the use of social aggression may be particularly adaptive in the peer context because such behaviors are socially acceptable, perhaps even socially valued. Theoretically, it is true that this argument could also be made for physical aggression. Indeed, several studies have revealed that in particular developmental and cultural contexts, physically aggressive behavior may be linked to social competence and may serve a variety of potential normative and prosocial functions (e.g., Hawley 2003a; Hawley and Vaughn 2003; Strayer and Noel 1986). From a dyadic perspective, there has been some (inconsistent) evidence that overtly aggressive children may not differ from their nonaggressive peers in having reciprocated friendships (c.f., Cairns et al. 1989; Hektner et al. 2000).

Preliminary empirical findings from studies of children's friendships also suggest that the use of social aggression, but not overt aggression, is associated with positive friendship qualities. For example, Grotjeter and

Crick (1996) reported that when compared to overtly aggressive children, the friendships of socially aggressive children were characterized by higher concurrent levels of intimacy and personal disclosure. Thus, perhaps social aggression may prove functional in establishing and maintaining close friendships. It also may be argued that the advantages of social strategies are particularly salient for girls because physical expressions of anger are less gender normative (see Underwood 2003, for a review). With respect to negative friendship qualities, recent findings reported by Cillessen et al. (2005) demonstrated that self-reports of social aggression were related to self-reports of negative friendship quality. However, these associations were not found for peer-reports of social aggression. Although there remains a paucity of empirical research addressing these questions, the theory underlying the frustration-aggression hypothesis may be useful in generating hypotheses about the relationship between emotional expression, friendship quality, and social aggression.

Interestingly, these ideas suggest that social aggression, more than physical aggression, should be associated with an advanced capacity for delayed gratification, greater (or at least temporary) frustration tolerance, and social nuance. The extent to which an individual responds to frustration with a social rather than a physical response suggests the presence of at least some adaptive social attributes. Note that even a response to frustration that is socially aggressive may not be considered as adaptive as a nonaggressive response. However, the possibility that social aggression may be associated with at least some adaptive attributes remains relatively untested. Of particular importance, the association between social aggression and adaptive functioning may be enhanced in the presence of social rewards for this form of behavior. This is described in more detail below.

In contrast to reactive aggression, proactive aggression is understood as aggressive behavior that is directed toward attaining a specific, self-serving goal (Dodge and Coie 1987). Proactive aggression is cited in evolutionary models and ethological studies suggesting that aggressive behavior may be used to achieve any number of species-preserving functions (e.g., Lorenz 1966). Extensions of this original ethological conceptualization of aggression (e.g., Daly and Wilson 1988, 2003) recommend the consideration of aggression as an evolved adaptation to particular environmental and adaptive problems. As such, aggressive behavior is understood as a tactic used to pursue social goals that cannot be qualified as normal or abnormal from an ethological perspective (Anderson and Bushman 2002).

A recent application of these ideas pertains to the use of aggressive behavior to establish social dominance. Hawley's (1999) resource control theory questions the hegemony of the aggression-maladaptation association by

proposing that social competence requires a balance between agency and communion, and aggressive and prosocial interpersonal orientations. In contrast to ethological views of social dominance as aggressive behavior with impunity (e.g., Bernstein 1981); Hawley (1999) defines social dominance as the result of effective use of resource control strategies. Specifically, resource control theory hypothesizes that some aggressive individuals employ only coercive strategies of resource control (e.g., threatening others), whereas others employ both coercive and prosocial strategies (e.g., promise reciprocation, cooperation). Hawley (2003a) found that children who use both coercive and prosocial strategies, termed bistrategic controllers, do in fact benefit from greater resource control and social centrality as compared to individuals who use exclusively coercive or prosocial strategies. As such, bistrategic controllers are considered effective resource controllers who generally have high status in the social network, enjoy a variety of positive personal outcomes, and are socially skilled (Hawley 1999).

In applying resource control theory to understanding social aggression, several key differences with physical forms of aggression emerge. Indeed, researchers have proposed a conceptual link between social aggression and centrality in the social group by arguing that socially aggressive behavior is used to strategically manipulate the social world in ways that may be effective in achieving and maintaining popularity, such as representing social status by selectively associating with others (e.g., Cairns and Cairns 1994; Underwood et al. 2001; Xie et al. 2002a). To date, preliminary findings support this proposition. Consistent with the basic tenets of resource control theory, Hawley (2003a) reported that children who acknowledged using both coercive and cooperative strategies in social interactions were liked by peers, socially skilled, and well-adjusted.

As a complement to ethological perspectives of proactive aggression, social learning models posit that individuals learn to aggress through modeling, direct operant reinforcement in the form of reward or punishment, and vicarious reinforcement through observational learning (Bandura 1973). As such, patterns of aggressive behavior develop in a social context and may prove functional in acquiring specific social benefits. From this perspective, proactive aggression is believed to be reinforced by the rewards that the aggressive behavior was designed to elicit such as status or social dominance (Bandura 1973, 1983). Support for this proposition was reported by Prinstein and Cillessen (2003), who found that the proactive use of aggression was associated longitudinally with high levels of popularity, suggesting that adolescents may perceive the use of such aggressive strategies as a means of maintaining status in the peer group.

In addition to the application of social learning principles to understanding potential instrumental functions, Xie et al. (2004) propose extending Bandura's concept of neutralization strategies to consider the function of socially aggressive behaviors. Specifically, Bandura (1973) believed that individuals address feelings of self-condemnation for their aggressive behavior by engaging in neutralizing strategies such as diffusion and displacement of responsibility, dehumanizing the victim, or justifying the aggression on the grounds of higher principles. Xie et al. (2004) suggest that social aggression may enable the aggressor to effectively neutralize self-condemnation through diffusion and displacement of responsibility when it is possible to conceal his or her identity within social networks.

In sum, not unlike work on reactive aggression, theories regarding proactive aggression suggest several pathways in which aggressive behavior (and socially aggressive behavior in particular) may be associated with adaptive correlates. To the extent that socially aggressive behaviors exhibited through proactive means may indicate a form of resource control, assertion of dominance, and are rewarded within the social hierarchy, social aggression should be associated with some measures of high status and social skill.

Review of Empirical Studies: Selection of Studies and Organization of Findings

To examine evidence related to the aforementioned theoretical propositions, a careful review of the extant empirical literature was conducted. Studies were initially selected for review through a computer search of the PsycINFO database. A search was performed for the literature from 1980 to present, identifying all studies that involved psychosocial outcomes associated with relational, social, indirect, nonphysical, and verbal aggression in preschool- and school-age children, adolescents and young adults (i.e., college-age students). Studies that included psychosocial variables as predictors of social forms of aggression also were included. A broad search was completed because inclusive measures of aggression are not always featured as keywords or noted in the abstract and instead may be described in the methods or results sections. All identified studies were screened and only those that were published in peer-reviewed journals and that involved a psychosocial measure of interest to this review were retained. To limit the scope of this review, studies that solely addressed (a) family factors (e.g., parental sibling relationships) or exposure to media as potential developmental precursors to social aggression, (b) associations between overt, physical, or direct aggression and social

forms of aggression, and (c) stability of social aggression over time were not included. To ensure that all relevant studies were located, the reference sections in each published paper were subsequently reviewed to identify studies that may have been missed in the computer-based search.

Findings from each study are categorized by age group (i.e., preschool, elementary school-age, middle/high school-age, early adulthood). The preschool-age category is comprised of studies of children who were less than 5 years of age at the time the study was conducted, or who were designated as attending preschool. The elementary-age category is comprised of studies of children who were in Kindergarten through fifth grade (approximately ages 5–11). The middle/high school-age category is comprised of adolescents who were in sixth through 12th grades (approximately ages 12–17). The early adulthood category is comprised of studies of college-age students (ages 18 and above).

We applied a series of decision rules to determine how to most appropriately classify studies that could be included in more than one age category. When possible, findings are reported for each grade or age group separately on the appropriate tables. Accordingly, there are several studies that may be listed under both the elementary and middle/high school charts, but the findings reported reflect only the appropriate age groups (e.g., third-grade findings on the elementary charts, seventh-grade findings on the middle/high school charts). For studies that did not report findings separately by grade, the classification of studies is based on any available information regarding the frequencies of participants by grade. Thus, if frequency data were available, studies were classified into a category based on which grades were represented by the majority of children or adolescents in the sample. For example, if the only information available was that the children were in grades 4 ($n = 100$), 5 ($n = 100$), and 6 ($n = 75$), the study was classified under the category of elementary years. If information regarding frequencies was not available, studies were classified based on the reported mean age of participants (i.e., 5- to 11-year olds are in the elementary school-age category, 12- to 17-year-olds are in the middle/high school category).

As noted above, each age group category is further divided into three theoretical groupings: group-level, dyadic-level, and individual-level findings. Group-level findings refer to the results of studies linking social aggression to two distinct peer status constructs. Specifically, studies have begun to focus attention on differentiating the peer status constructs of social preference (i.e., peer acceptance/rejection, likeability) and peer-perceived popularity (i.e., social reputation in the peer group). For decades, group-level peer status has been defined as a preference-based construct, typically assessed

by asking peers to nominate their preferred peers (those who are liked most or liked least) (Coie and Dodge 1983). Substantial research suggests that peer acceptance/rejection is an important construct indicating the extent to which children are well-liked within the peer group (Coie and Dodge 1983). More recently, a reputation-based construct has been developed to reflect youths' reputations of status and popularity at the group level (based on peer nominations of most- and least-popular) (Parkhurst and Hopmeyer 1998). Similar to studies in sociology and human ethology, reputation-based popularity is thought to represent dominance and positions within the social hierarchy (Prinstein and Cillessen 2003; Rose et al. 2004b). Dyadic-level findings refer to studies of friendship, including whether an individual has reciprocated friendships, and the quality and stability of such friendships. Finally, individual-level findings refer to studies of outcomes that are specific to the self- or other-reported psychological functioning or adjustment of participants (e.g., depressive symptoms, behavior problems, self-esteem). These groupings parallel the theoretical conceptualization of examining peer effects across these different social and interpersonal contexts (Hartup 1996). A final division is made between concurrent and longitudinal findings within each age category and theoretical grouping.

With respect to documenting specific findings, the measure of aggression is coded in terms of the descriptor used in the original study (i.e., social, relational, verbal, indirect) in order to facilitate comparisons between studies. For the same reason, the reporter of the aggression nomination or rating is coded (i.e., limited peer nomination, unlimited peer nomination, teacher rating, self-report). To minimize confusion, the code for the reporter only is listed in the findings column in cases for which there are at least two reporters of aggression. The coding system used to classify the reporter of aggression also is applied to coding the reporter of relevant outcomes. Finally, findings are designated under columns denoted as separate indices of positive and negative adjustment. Indices of positive adjustment include variables that are typically associated with adaptive functioning, such as high levels of peer acceptance, peer-perceived popularity, positive friendship quality, and academic achievement. Indices of negative adjustment include variables that are typically associated with maladaptive or problematic functioning, such as high levels of social exclusion, negative friendship quality, and depressive symptoms. In some cases, indices of positive adjustment may include low levels of markers typically associated with problematic outcomes, such as peer rejection and negative friendship quality. Likewise, indices of negative adjustment may include low levels of markers typically associated with adaptive outcomes, such as receipt of prosocial attention from peers and engagement in reciprocated friendships. Although the

designation of whether a given finding represents positive or negative adjustment may represent a matter of debate, the authors made a determination based on an evaluation of the measured outcome variable. Moreover, it is not the case that all measured outcomes necessarily represent positive or negative adjustment, and it follows that determinations regarding whether a behavior is adaptive should be made in a social context. As such, it is acknowledged that these designations may represent a false dichotomy in some cases, and that they are based on value judgments about the nature of the outcome in question. The purpose of the classification is merely to facilitate a review of current findings.

For studies included in the tables, only findings that reached statistical significance are reported. Despite the obvious limitations of this approach (Cohen 1994), it is believed that this represents an important first step in a systematic review of findings to date. It is noted that all of the studies represent correlational designs that cannot be interpreted as evidence of causal associations. Moreover, given that physical and social aggression are typically correlated at least in the moderate range (i.e., $r = .50$), it is critical to examine the unique associations between social aggression and outcomes of interest. Accordingly, zero-order correlations are only reported in cases for which additional analyses (e.g., regression, path analysis) were not conducted. In these cases, there is a note in the chart to clarify that the finding in question represents a zero-order correlation that does not control for the effects of physical or overt aggression.

The following sections will summarize the findings from each of the tables, beginning with the preschool-age studies and followed by a review of the elementary school-age, middle and high school-age, and early adulthood studies.

Preschool-Age Children: A Review of Concurrent Associations and Longitudinal Outcomes

Although the study of relational aggression in early childhood remains a relatively new area of research, several innovative studies have highlighted how developmentally appropriate methods may be used to identify relationally aggressive children as early as approximately age three. Interestingly, studies at the group-, dyadic-, and individual-levels among preschool children provide considerable evidence of concurrent positive and negative indices of maladjustment.

Group-Level Findings

With respect to group-level findings, studies have examined both social and verbal forms of aggression using observational coding, teacher ratings, and peer nominations

(Tables 1 and 2). In terms of verbal aggression among girls, observationally coded verbal aggression by trained raters has been linked to higher peer acceptance (Ostrov et al. 2004), lower peer exclusion (Ostrov et al. 2004), and teacher reports of higher dominance with female peers (Ostrov and Keating 2004). For boys, observations of verbal aggression with both male and female peers have been associated with higher teacher-rated dominance (Ostrov and Keating 2004). Peer nominations of social aggression have been associated with higher sociability among girls (Nelson et al. 2005), and higher peer acceptance by same-sex peers among boys (Crick et al. 1997). Teacher ratings of social aggression also have been related to increased peer acceptance by same-sex peers for boys (Crick et al. 1997). Group-level findings of negative indices of adjustment offer further evidence of gender differences. Specifically, boys' relational aggression was associated with higher teacher ratings of peer exclusion and lower levels of received prosocial behavior (Ostrov and Keating 2004). For girls, both teacher ratings and peer nominations of social aggression were associated with higher levels of peer nominations of peer rejection (Crick et al. 1997), and lower levels of peer acceptance (McNeilly-Choque et al. 1996). Finally, results from one longitudinal study (Crick et al. 2006a, b) found that for girls only, initial observations of social aggression predicted higher peer rejection 18 months later. A more recent longitudinal study conducted by Ostrov and Crick (2007) found that proactive social aggression predicted increased peer rejection 1 year later, suggesting that an examination of the function of aggressive behavior may be critical to understanding the complex associations between social aggression and peer status variables.

Dyadic-Level Findings

Whereas there are several studies involving group-level phenomena, very few studies of preschool-age children have examined social aggression in the context of friendship variables (Tables 3 and 4). Burr and colleagues (2005) reported that at the fall assessment of a year-long study, boys who were identified as more socially aggressive by trained observers had fewer mutual friendships than their non-socially aggressive peers. However, at a later spring assessment, both boys and girls who were identified as socially aggressive reportedly had more mutual friendships than their non-socially aggressive peers (Burr et al. 2005). Interestingly, Sebanc (2003) reported that compared to male peers who had mutual same-sex friends, boys who did not have any mutual same-sex friends were rated as less socially aggressive by teachers. The opposite effect was true for girls in that girls who had mutual same-sex friends were rated as less relationally aggressive by teachers than

were girls who did not have mutual friendships (Sebanc 2003). Sebanc (2003) also reported that the friendships of socially aggressive children were characterized by high levels of teacher-rated exclusivity and intimacy, as well as high levels of teacher-rated friendship conflict. In terms of longitudinal findings, only one study has been conducted to date (Burr et al. 2005). Findings from this study suggested that for girls only, observations of high levels of social aggression predicted higher numbers of stable friendships over the course of the school year. Burr and colleagues (2005) also found that for girls, the number of mutual friendships at the initial time point predicted social aggression 1 year later. Of note, a marginal nonsignificant trend in the data was observed between high levels of social aggression at the initial assessment and an increase in the number of mutual friendships both boys and girls had at the end of the school year.

Individual-Level Findings

In contrast to many of the findings reported for school-age children and early adults, studies have identified associations between social aggression and a variety of markers of positive adjustment in young children (Tables 5 and 6). For girls, observationally coded verbal aggression has been positively linked to teacher reports of prosocial behavior, and negatively linked to teacher reports of depressed affect and asocial behavior (Ostrov et al. 2004). Teacher reports of social aggression have been associated with above average or average social skills (Carpenter and Nangle 2006), expressing guilt (Hawley 2003b), verbal skills (Bonica et al. 2003), and for girls only, moral maturity (Hawley 2003b). Findings are mixed with respect to language abilities. Teacher ratings of social aggression have been positively related to verbal skills in boys and girls (Bonica et al. 2003), and receptive language ability in girls only (Hawley 2003b); however, Estrem (2005) reported that for girls, social aggression was negatively associated with expressive language skills. Problematic behaviors and adjustment difficulties also have been reported. Specifically, teacher ratings of social aggression have been associated with teacher ratings of impulsive, oppositional, anxious, or depressive behaviors among boys and girls (Juliano, Werner, and Cassidy 2006), and teacher ratings of depressed affect for girls only (Crick et al. 1997). Peer nominations of social aggression also have been linked to girls' lower prosocial behavior (Crick et al. 1997). Finally, Ostrov (2006) found that observations of social aggression positively predicted higher levels of teacher-rated deception among boys and girls.

Taken together, studies of preschool-age children have applied observational methods as a complement to traditional peer, teacher, and self-reports of social aggression in

Table 1 Preschool-age children: Group-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (months) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------------|-----------------|--|-----------------------------|--|---|
| Ostrov (2008) | 120 (69 girls) | $M = 44.36$, $SD = 11.0$ | Observation | | RAg related to higher RVic (TR) |
| Nelson et al. (2005) | 328 (160 girls) | $M = 57$, $SD = 5.9$ | Teacher (TR) Peer (PN-L) | Girls only: RAg (PN-L) related to higher sociability (TR) RAg (PN-L) related to higher sociability (PN-L) Neglected < Average (PN-L) for RAg (TR) Boys only: VAg with male peers related to higher dominance (TR) | Neglected < Average < Controversial (PN-L) for RAg (PN-L) |
| Ostrov and Keating (2004) | 48 (24 girls) | $M = 64$, $SD = 6.77$ | Observation (VAg, RAg) | RAg with female peers related to higher dominance (TR) Girls only: VAg with female peers related to higher dominance (TR) | |
| Ostrov et al. (2004) | 60 (29 girls) | $M = 54.86$, $SD = 6.06$ | Observation (VAg, RAg) | Girls only: VAg related to higher peer acceptance (TR) VAg related to lower peer exclusion (TR) | Boys only: RAg related to higher peer exclusion (TR) RAg related to lower received prosocial behavior (TR) |
| Hawley (2003b) | 163 (89 girls) | 34–71 | Teacher (TR) | RAg related to resource control (TR) RAg related to prosocial control (TR) RAg related to bistrategic control (TR) Bistrategic control (TR) < Other groups (Coercive, prosocial, typical, noncontroller, all TR) | RAg related to coercive control (TR) |
| Crick et al. (1997) | 65 (31 girls) | 42–66 | Teacher (TR) Peer (PN-L) | Boys only: RAg (PN-L) related to higher peer acceptance by same-sex peers (TR) RAg (TR) related to higher peer acceptance with same-sex peers (TR) RAg (TR) related to higher peer acceptance (PN-L) | Girls only: RAg (TR) related to higher peer rejection (PN-L) RAg (PN-L) related to higher peer rejection (PN-L) |
| McNeilly-Choque et al. (1996) | 241 (107 girls) | Sample 1: $M = 58$, $SD = 3.7$ Sample 2: $M = 60$, $SD = 4.3$ | Peer (PN-L) Teacher (TR) | | Girls only: RAg (TR) related to lower peer acceptance (PR) RAg (PN-L) related to lower peer acceptance (PR) |

List of Abbreviations: Aggression Construct: RAg Relational aggression, SAg Social aggression, IAg Indirect aggression, VAg Verbal aggression, OAg Overt aggression, PAg Physical aggression. Reporter: OB Observationally coded, SR Self-report, PR Peer rating, PIR Parent rating, TR Teacher rating, PN-L Peer nomination-limited nomination procedure, PN-U Peer nomination-unlimited nomination procedure, TN-L Teacher nomination-limited nomination procedure, TN-U Teacher nomination-unlimited nomination procedure

Table 2 Preschool-age children: Group-level findings of longitudinal associations between social aggression and adjustment outcomes

| Study | Sample | Age (months) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------|------------------------------------|------------------------------|--|--------------------------------|--|
| Ostrov (2008) | 120 (69 girls) 1 yr (T1, T2) | $M = 44.36$, $SD = 11.0$ | Observation | | Girls only: T1 RAg predicted increased T2 RVic (TR) |
| Ostrov and Crick (2007) | 132 (69 girls) 1 yr (T1, T2) | $M = 44.37$, $SD = 9.88$ | Observation (Reactive and Proactive RAg) | | T1 Proactive RAg predicted T2 peer rejection (TR) |
| Crick et al. (2006a) | 91 (52 girls) 18 months (T1-T4) | $M = 39$, $SD = 7.6$ | Observation | | Girls only: T1 RAg predicted future peer rejection (TR, average across T2-T4) |

Please see Table 1 footnote for list of abbreviations

Table 3 Preschool-age children: Dyadic-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (months) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|--------------------|---------------------------------|--------------------------------|--------------------|---|---|
| Burr et al. (2005) | 101 (53 girls) 1 yr (T1, T2) | $M = 49.5$, $SD = 7.2$ | Observation | T2 RAg related to T2 mutual friendships (PR) | Boys only at T1: Fewer concurrent mutual friendships (PR) |
| Sebanc (2003) | 98 (46 girls) | 37.08–60.96 $M = 46.92$ | Teacher (TR) | RAg related to greater friendship exclusivity/intimacy (TR) Boys with friends (PN-L) were more RAg than boys without friends | RAg related to friendship conflict (TR) Girls with friends (PN-L) were less RAg than girls without friends |

Please see Table 1 footnote for list of abbreviations

Table 4 Preschool-age children: Dyadic-level findings of longitudinal associations between social aggression and adjustment outcomes

| Study | Sample | Age (months) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|--------------------|---------------------------------|----------------------------|--------------------|--|---|
| Burr et al. (2005) | 101 (53 girls) 1 yr (T1, T2) | $M = 49.5$, $SD = 7.2$ | Observation | T1 RAg predicted T2 friendships (PR) Girls only: T1 RAg predicted number of stable friendships (PR) over the school year | Girls only: Number of T1 mutual friendships predicted T2 RAg |

Please see Table 1 footnote for list of abbreviations

order to better understand the development of socially aggressive behaviors among young children. Although it was initially believed that preschoolers were not capable of engaging in socially aggressive behaviors because of their more limited cognitive and social abilities (see Crick et al. 1999b, for review), more recent research suggests that there is much to be learned about both the form and function of social aggression in young children. Findings are clearly mixed regarding to what extent engagement is socially aggressive behavior in preschoolers is predictive of short- and long-term maladjustment. Several studies have documented links between social aggression and measures of problematic adjustment, including peer rejection, conflict with friends and teachers, and behavioral

difficulties. That said, there is a growing base of evidence base to suggest that socially aggressive behaviors also may be associated with positive attributes, friendship features, and social skills. There also is some indication that these associations may be moderated by gender in that peer acceptance has been positively correlated with social aggression and number of mutual friends for boys, but the opposite has been demonstrated for girls. Accordingly, it is imperative that careful consideration be given to the possibility that gendered socialization experiences may result in different peer cultures for boys and girls, wherein the meaning and significance of aggressive behavior may differ over the course of development (see Maccoby 1998, 2004; Underwood 2004, for reviews).

Continued research aimed at examining the social context in which socially aggressive behaviors occur will offer an important contribution to understanding to what degree

gendered peer cultures may be implicated in the development of social aggression for boys and girls in early childhood.

Table 5 Preschool-age children: Individual-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (months) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-----------------------------|----------------|------------------------------|--------------------|--|--|
| Carpenter and Nangle (2006) | 82 (40 girls) | $M = 48.4,$ $SD = 7.2$ | Teacher (TR) | RAg related to better social skills (TR); children with above average or average social skills had higher levels of RAg than children with below average social skills | |
| Juliano et al. (2006) | 67 (35 girls) | $M = 52,$ $SD = 7.73$ | Teacher (TR) | | RAg related to higher problem behaviors (i.e., impulsive, oppositional, anxious, or depressive behaviors) (TR)* *Pearson product-moment correlation |
| Ostrov (2006) | 64 (37 girls) | $M = 44.65,$ $SD = 13.39$ | Observation (OB) | | RAg related to higher deception (TR) |
| Estrem (2005) | 100 (54 girls) | $M = 50.4,$ $SD = 7.4$ | Teacher (TR) | | Girls only: RAg related to better expressive language skills (SR) |
| Ostrov et al. (2004) | 60 (29 girls) | $M = 54.86,$ $SD = 6.06$ | Observation (VAg) | Girls only: VAg related to higher prosocial behavior (TR) VAg related to lower depressed affect (TR) VAg related to lower asocial behavior (TR) | |
| Bonica et al. (2003) | 145 (79 girls) | $M = 55.9,$ $SD = 8.2$ | Teacher (TR) | Verbal skills (SR), effect not conclusively moderated by SES | |
| Hawley (2003b) | 163 (89 girls) | 34–71 | Teacher (TR) | Expressing guilt (SR) Girls only: RAg related to higher moral maturity (i.e., low on hedonistic reasons, high on rule reasons) (SR) RAg related to higher receptive language ability (SR) | |
| Crick et al. (1997) | 65 (31 girls) | 42–66 | Teacher (TR) | | Girls only: RAg related to depressed affect (TR) |

Please see Table 1 footnote for list of abbreviations

Table 6 Preschool-age children: Individual-level findings of longitudinal associations between social aggression and adjustment outcomes

| Study | Sample | Age (months) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------|----------------|-----------------------------|--|--------------------------------|---|
| Ostrov and Crick (2007) | 132 (69 girls) | $M = 44.37,$ $SD = 9.88$ | Observation (Reactive and Proactive RAg) | | T1 Proactive RAg and higher T2 student-teacher conflict (TR) T1 Reactive RAg and higher T2 student-teacher conflict (TR) |
| | 1 yr (T1, T2) | | | | |

Please see Table 1 footnote for list of abbreviations

Elementary School-Age Children: A Review of Concurrent Associations and Longitudinal Outcomes

Group-Level Findings

There is an ever-growing literature related to the study of social aggression among elementary school-age children and several key group-level variables (Tables 7 and 8). The earliest concurrent studies demonstrated that socially aggressive children were at increased risk for peer rejection (i.e., many “liked least” nominations) (Crick and Grotpeter 1995; Tomada and Schneider 1997), and in some cases this association held only for girls (Rys and Bear 1997). Socially aggressive children also were identified as having lower social acceptance (i.e., few “liked most” nominations) (Henington et al. 1998; Lancelotta and Vaughn 1989). Crick (1996) reported a similar pattern of findings in a longitudinal analysis whereby for girls, social aggression predicted increases in peer rejection and decreases in peer acceptance 1 year later. In terms of gender differences, Crick and Grotpeter (1995) found that boys who were not identified as socially aggressive were nominated as less prosocial by peers as compared to non-socially aggressive girls, and socially aggressive boys and girls. Finally, sociometric status (e.g., popular, average, neglected, controversial, rejected) was implicated in several studies documenting that compared to all other status groups, nominations of social aggression were highest for rejected children (Henington et al. 1998), controversial children (Crick and Grotpeter 1995), or both rejected and controversial children (Tomada and Schneider 1997).

Since the publication of the first studies linking social aggression to peer status, numerous researchers have examined the nature of these associations using peer nomination procedures.

Among elementary school-age children, social aggression has been concurrently associated with lower social preference/peer rejection for boys and girls (Johnson and Foster 2005; Murray-Close and Crick 2006; Werner and Crick 2004; Zimmer-Gembeck et al. 2007). Findings from a recent longitudinal study provided evidence of social aggression as a predictor of decreased social preference for boys and girls (Johnson and Foster 2005). Similarly, Murray-Close and Crick (2006) found that increases in peer rejection were associated with time-dependent increases in social aggression over 1 year. Finally, Werner and Crick (2004) reported that for girls only, higher levels of peer rejection predicted higher levels of social aggression 1 year later.

Although the majority of studies of elementary school-age children seem to suggest that social aggression is linked to lower social preference (i.e., higher peer

rejection) concurrently and longitudinally, findings related to peer-perceived popularity are considerably less clear. For example, social aggression has been positively associated with peer-perceived popularity in several studies (e.g., Andreou 2006; Lease et al. 2002), and also with measures of social impact (i.e., many nominations of acceptance and rejection among peers) (Zimmer-Gembeck et al. 2007), and increases in social impact over time among girls (Zimmer-Gembeck et al. 2007). Interestingly, high levels of social impact predicted increases in social aggression among boys (Zimmer-Gembeck et al. 2007). Rose et al. (2004b) also reported that peer-perceived popularity predicted increases in social aggression over a six-month period for fifth-grade students. Interestingly, a similar effect of peer-perceived popularity on increased social aggression was not observed among third-grade students in the Rose et al. (2004b) study. The different pattern of findings linking social aggression to the peer constructs of social preference and peer-perceived popularity highlights the value of drawing a distinction between the two constructs of peer-perceived popularity. Indeed, being perceived as popular by peers is only moderately related to being liked (e.g., LaFontana and Cillessen 1999; Parkhurst and Hopmeyer 1998). As a consequence, research efforts aimed at addressing mechanisms through which aggressive behaviors may enhance or detract from peer status are well-advised to consider this important distinction.

There is mounting evidence that the two peer status constructs of likeability and popularity become increasingly differentiated over time and that this differentiation becomes particularly marked for girls (e.g., Cillessen and Mayeux 2004; Zimmer-Gembeck et al. 2005). As such, compared to boys, it may be more difficult for girls who are perceived as popular to simultaneously maintain high likeability in the peer group. It also is possible that the meaning of social aggression is different for boys than for girls in that behaviors defined as socially aggressive may be generally perceived as more playful or teasing among boys than girls, and judgments about the intent of social aggression may meaningfully differ across gender. It follows that clarifying the nature of associations between social aggression and peer status may require understanding the potential moderational influence of the social context and the complex dynamics of peer affiliations in the social network (e.g., Stormshak et al. 1999). For example, research on peer group norms has demonstrated that overtly aggressive behavior does not have detrimental effects on the establishment and maintenance of friendships in environments where aggression is perceived as an acceptable strategy for ensuring self-protection and attaining instrumental goals (e.g., Cairns et al. 1989; Giordano et al. 1986). With respect to aggression and social preference/likeability,

there is empirical evidence that peer acceptance for particular social behaviors, including overt aggression, is influenced by peer group norms such that children who display high levels of nonnormative behavior will be at risk of rejection from the peer group (e.g., Boivin et al. 1995; Wright et al. 1986). As such, perhaps associations between peer status and social aggression are in fact moderated by peer group norms such that the perceived acceptability of socially aggressive behavior within a given group may have an important moderating influence. Finally, Vaillancourt (2005) has proposed that socially aggressive individuals may be accepted by many of their peers yet rejected by their victims, which further underscores the importance of taking the peer context, and specifically the rater, into account when examining associations between social aggression and peer status.

Dyadic-Level Findings

Given that the success of many socially aggressive behaviors (e.g., spreading rumors, social exclusion) depends on the participation of other peer group members, it seems plausible that having at least one reciprocated relationship is necessary for engaging in social aggression (Tables 9 and 10). Findings from early concurrent research on the effect of social aggression on friendship indicated that socially aggressive children did indeed have mutual friendships, and that the number of mutual friendships did not differ between social aggressors and non-aggressors (Grotper and Crick 1996; Rys and Bear 1997). More specifically, Rys and Bear (1997) found no effect of social aggression on the likelihood that socially aggressive girls in a sample of third- and sixth-grade students had reciprocated friendships. Conversely, concurrent findings suggest that high levels of social aggression may be associated with fewer mutual friendships (Johnson and Foster 2005) and higher numbers of same- and mixed-sex antipathies (i.e., two children who identify one another as disliked peers) (Murray-Close and Crick 2006).

In terms of friendship quality, Grotper and Crick (1996) documented higher levels of self-reported friendship exclusivity, intimacy, and friend self-disclosure among socially aggressive boys and girls. Importantly, the friends of socially aggressive children reported higher levels of intimacy in their friendships as compared to friends of non-socially aggressive children. Although speculative, these findings offered preliminary evidence of the social benefits associated with social aggression at the dyadic-level and could be interpreted in the context of research conducted on negative evaluation gossip, which is arguably a form of social aggression. For example, Gottman and Mettetal (1986) contend that sharing negative evaluation gossip provides a means of establishing a sense

of solidarity among friends. It is further argued that gossip exchanges among friends may represent bids for emotional closeness. As such, when gossip is validated or positively reinforced by a friend, the initial speaker may experience increased feelings of inclusion and trust, and a decreased sense of vulnerability. This reduced vulnerability may in turn promote self-disclosure, emotional intimacy, and positive affect in the friendship.

Although there have been few published longitudinal studies, findings suggest that there may be important selection and socialization processes involved in understanding the friendships of relationally aggressive children. For example, Werner and Crick (2004) found that children who selected relationally aggressive friends at the beginning of a school year were more likely to select relationally aggressive friends 1 year later, despite having changed classrooms. This study also documented a positive, prospective association between children's relational aggression at the initial assessment and the level of relational aggression among mutual friends 1 year later. For girls, this association also held in the opposite direction, meaning that mutual friends' relational aggression at the initial assessment predicted peer nominations of target children's relational aggression at the second assessment point. Results of one other longitudinal study have indicated that increases in self-disclosure by a close friend may be associated with increases in social aggression over time (Murray-Close et al. 2007). Finally, in a study of 5- and 6-year-old children, socially aggressive behavior predicted fewer mutual friendships over a two-month period (Johnson and Foster 2005).

In sum, a relatively longstanding history of qualitative sociological and anthropological research has demonstrated the positive functions of some forms of social aggression (e.g., negative evaluation gossip) in the communication of social information, clarification of social norms, and promotion of group cohesion (Eder and Enke 1991; Eder and Sanford 1986; Fine 1986; Illich 1982). There is evidence that shared social evaluations of an absent third party may increase solidarity and intimacy in a relationship by creating a "we-against-them" climate (Beisner 1989; Eckert 1990; Gottman 1986; Gottman and Mettetal 1986; Rysman 1977; Suls 1977). Although there is scant evidence that being socially aggressive serves a function in the initiation and, to some extent, maintenance of relationships, it is imperative that researchers continue to examine how social aggression may function in friendship dynamics using innovative methodologies. The focus of most studies on linear associations between aggression and dyadic-level variables has made important contributions to the literature; however, perhaps moderate levels of peer-nominated social aggression reflect more skillful use of socially aggressive strategies. Additionally, peer nominations from

Table 7 Elementary school-age children: Group-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (years/grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------------|------------------|---------------------|-----------------------------------|---|--|
| Zimmer-Gembeck et al. (2007) | 334 (167 girls) | $M = 11, SD = .9$ | Peer (PN-L) | | RAg related to higher peer rejection (PR) RAg related to lower prosocial behavior (PN-L) |
| Andreou (2006) | 403 (189 girls) | $M = 11.2, SD = .8$ | Peer (PN-U) | RAg related to higher peer-perceived popularity (PN-U) | |
| Murray-Close and Crick (2006) | 590 (295 girls) | 4th | Peer (PN-L) | | RAg related to higher peer rejection (PN-L) |
| Johnson and Foster (2005) | 74 (33 girls) | $M = 5.8, SD = .42$ | Peer (PN-U) Teacher (TR) | | RAg (PN-U) related to lower peer liking (PR) |
| Zimmer-Gembeck et al. (2005) | 458 (229 girls) | 3rd | Peer (PN-L) | RAg related to higher social impact (acceptance + rejection) (PN-L); effect was stronger among boys than girls | RAg related to lower social preference (PN-L) |
| Werner and Crick (2004) | 979 (537 girls) | 2nd–4th | Peer (PN-L) | | At T1 and T2 points: RAg related to higher peer rejection (PN-L) Boys only: Friend T1 RAg related to higher T1 peer rejection (PN-L) |
| Zalecki and Hinshaw (2004) | 228 (all girls) | 6–12 | RAg Composite (TR, PtR, PN-L, OB) | | For ADHD-Combined, ADHD-Inattentive, and ADHD-Hyperactive-Impulsive: RAg related to more negative (liked least) peer nominations (PN-L) For ADHD-Combined only: RAg related to fewer positive (liked most) nominations Excluding behavior (PN-L) related to lower sociometric popularity (PN-L) Boys only: Popular had well-liked boys had lower RAg |
| Lease et al. (2002) | 487 (248 girls) | 9–13, 4th–6th | Peer (PN-L) | Excluding behavior (PN-L) related to perceived popularity (PN-L) RAg higher among perceived-popular children who were not well-liked (PN-L) Boys only: Popular-only boys (PN-L) had higher RAg | |
| Wolke et al. (2000) | 1639 (963 girls) | $M = 7.6, SD = 1.0$ | Interview | | Relational bullying related to lower prosocial behavior (PtR) |
| Crick and Bigbee (1998) | 383 (189 girls) | 4th and 5th | Peer (PN-L) | | RVic (PN-L) and RAg were moderately highly correlated; however, overlap between extreme groups of RAg and RVic children suggested that the initiators and targets of RAg tended to be different children |

Table 7 continued

| Study | Sample | Age (years/grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|------------------------------|-----------------|-------------------|------------------------|--|---|
| Herington et al. (1998) | 904 (443 girls) | 2nd and 3rd | Peer (PN-L) | | <p>RAG related to lower peer acceptance (PN-L)</p> <p>Rejected children (PN-L) scored higher on RAG than all other status groups (i.e., popular, average, neglected, controversial)</p> <p>Boys only:</p> <p>RAG only predicted peer rejection (PN-L) when combined with OAg (PN-L)</p> <p>Girls only:</p> <p>RAG related to higher peer rejection (PN-L)</p> <p>T1: Rejected children (PN-L) higher on RAG than all other status groups except for controversial</p> <p>Controversial and average children's RAG scores were significantly higher than popular or neglected children</p> <p>T2: Both rejected and controversial children scored significantly higher in RAG than the other status groups</p> |
| Rys and Bear (1997) | 131 (70 girls) | 3rd | Peer (PN-L) | | |
| Tomada and Schneider (1997) | 314 (147 girls) | 8–10 | Peer (PN-L) | | |
| Crick and Grotpeter (1995) | 491 (235 girls) | 3rd–6th | Peer (PN-L) | Non-RAG boys less prosocial (PN-L) than RAG boys, RAG girls, and non-RAG girls | <p>RAG related to higher peer rejection (PN-L)</p> <p>Non-RAG girls more prosocial (PN-L) than non-RAG boys, RAG boys, and RAG girls</p> <p>Controversial children (PN-L) were significantly more RAG than all other status groups, including rejected children (PN-L)</p> <p>Rejected (PN-L) were significantly more RAG than popular and neglected children (PN-L)</p> <p>Neglected children (PN-L) were significantly less RAG than average status children (PN-L)</p> |
| Lancelotta and Vaughn (1989) | 98 (51 girls) | 8–10, $M = 9.5$ | Peer (PN-U); VAg; IAg) | | <p>IAG related to lower social acceptance (PN-U)</p> <p>VAG related to lower social acceptance (PN-U)</p> |

Please see Table 1 footnote for list of abbreviations

Table 8 Elementary school-age children: Group-level findings of longitudinal associations between social aggression and adjustment outcomes

| Study | Sample | Age (years/grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------------|---|-----------------------------------|-----------------------------|---|--|
| Murray-Close and Crick (2006) | 590 (295 girls) 1 yr (T1-T3) | 4th | Peer (PN-L) | | Increases in peer rejection (PN-L) were associated with time-dependent increases in RAg |
| Johnson and Foster (2005) | 74 (33 girls) 2mos (T1, T2) | $M = 5.8, SD = .42$ | Peer (PN-U) | | T1 RAg (PN-U) predicted decreases in T2 peer liking (PR) |
| Zimmer-Gembeck et al. (2005) | 458 (229 girls) 3 years (T1, T2) | 3rd grade (T1) and 6th grade (T2) | Peer (PN-L) | Girls only: T1 RAg predicted T2 social impact (PN-L) | Girls only: T1 RAg predicted T2 lower social preference (PN-L) |
| Rose et al. (2004b) | 554 (272 girls) 6 months (T1, T2) | 3rd and 5th | Peer (PN-L) | Boys only: T1 social impact (PN-L) predicted more T2 RAg nominations | Boys only: T1 higher social preference predicted fewer T2 RAg nominations (PN-L) |
| Werner and Crick (2004) | 979 (537 girls) | 2nd–4th | Peer (PN-L) | 5th grade only: T1 perceived popularity predicted T2 RAg | Girls only: Higher levels of T1 peer rejection (PN-L) predicted higher levels of T2 RAg |
| Crick (1996) | 245 (106 girls) 1 yr (T1-T3) | 9–12 | Peer (PN-L) Teacher (TR) | | Girls only: T1 RAg (PN-L) predicted higher T2 peer rejection (PN-L) T1 RAg (TR) predicted lower T2 peer acceptance (PN-L) T1 RAg (PN-L) predicted increases in peer rejection from T1 to T3 (PN-L) T1 RAg (TR) predicted decreases in peer acceptance from T1 to T3 (PN-L) |

Please see Table 1 footnote for list of abbreviations

within friendship dyads (i.e., friend-report) would perhaps provide a useful strategy for assessing more skillful social aggression in that informants would be privy to socially aggressive behaviors that may not have been known to all group members. Moreover, given that it has been argued that social aggression increases social prominence through its effects on dyadic friendships (i.e., Cillessen et al. 2005), it follows that attention to relational dynamics, as well as to the social and developmental contexts in which social aggression occurs, is critical to understanding potential prosocial functions of socially aggressive behavior at the group level. As such, it could be that for some individuals, the perceived benefits of enhancing social status at the group-level outweigh the possibility that social aggression will ultimately compromise the long-term stability of a given friendship.

Individual-Level Findings

In terms of individual-level outcomes, much of the early research was informed by documented associations between physical aggression in boys and social-information processing biases, experiences of peer rejection, and long-term negative psychological outcomes that had been well-established in the literature (Table 11). Given that it has been posited that social aggression may serve a similar function in the developmental psychopathology of girls as physical aggression does in boys (Crick et al. 1999b), it seems reasonable to anticipate similar links between social aggression in girls and maladaptive consequences. A review of the concurrent individual-level outcomes suggests that although the vast majority of studies have only identified associations between social aggression and adjustment difficulties, there has been a lack of attention paid to the measurement of possible indices of positive adaptation. Given that the absence of difficulties by no means implies the presence of positive adjustment, it follows that interpretation of the current body of evidence must be made cautiously given the overriding emphasis on measures of maladjustment.

To date, many researchers have examined links between social aggression and social-information-processing biases or deficits that may offer a social-cognitive mechanism for understanding the behavior. Preliminary evidence indicates that children who are nominated by peers as socially aggressive demonstrate a social-information processing bias of interpreting ambiguous interpersonal cues as hostile (Crick 1995; Crick et al. 2002b). These findings align with more recent studies suggesting that social aggression is associated with a number of concurrent social-information processing difficulties, including an increased likelihood of a relationally aggressive responses to provocation that features relational themes (Crain et al. 2005), conflict

resolution strategies consistent with goals of self-interest and revenge (Delveaux and Daniels 2000), and normative beliefs about relational aggression (Werner and Nixon 2005; cf. Crick et al. 1996). In addition, Musher-Eizenman and colleagues (2004) found social-cognitive mediators (e.g., retaliation approval) linking indirect aggression to heightened anger control and exposure to aggression. Notably, these findings are in contrast to findings that social aggression was associated with peer nominations of higher social-information processing skills and social awareness (Andreou 2006), fewer hostile attribution ratings (Crain et al. 2005), and conflict resolution strategies consistent with goals of avoiding trouble, and maintaining peer relationships and personal control (Delveaux and Daniels 2000). Given the inconclusive nature of these findings, and the fact that links between social-information processing and social aggression have not been studied prospectively in any age group, it is imperative that no premature conclusions are drawn regarding the social-cognitive skills of socially aggressive individuals.

With respect to other indices of psychopathology and maladjustment, findings of both concurrent externalizing and internalizing difficulties have been documented in several studies. Specifically, social aggression has been associated with higher levels of teacher-reported externalizing difficulties (Crick 1997), attention deficit hyperactivity disorder (Zalecki and Hinshaw 2004), and self-reported impulsivity (Musher-Eizenman et al. 2004). In terms of internalizing difficulties, high levels of social aggression have been linked to higher levels on several indices of maladjustment, including teacher-reported internalizing symptoms (Crick 1997), self-reported anxiety in boys only (Marsee et al. 2008), self-reported depressive symptoms in both boys and girls (Crick and Grotpeter 1995; Zimmer-Gembeck et al. 2007), more depressive symptoms in girls only (Henington et al. 1998), perceptions of social isolation (Crick and Grotpeter 1995), and feelings of loneliness (Crick and Grotpeter 1995). It is important to note, however, that other studies have not found similar results, suggesting that these findings need replication. Moreover, there is reason to believe the associations may vary by developmental stage and gender. For example, in a sample of high school students, Prinstein and colleagues (2001) did not find an association between loneliness and social aggression, but did report that compared to socially aggressive girls, socially aggressive boys reported more feelings of loneliness.

Longitudinal studies have focused primarily on measures of psychopathology (Table 12). To date, social aggression has been associated with time-dependent increases in borderline personality features over the course of 1 year (Crick et al. 2005), increases in internalizing symptoms (Crick et al. 2006b; Murray-Close et al. 2007),

Table 9 Elementary school-age children: Dyadic-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (years/ grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------------|----------------------------------|--------------------------|--------------------|---|--|
| Murray-Close and Crick (2006) | 590 (295 girls) | 4th | Peer (PN-L) | | RAG related to higher number of same-sex antipathies (PN-L and SR) RAG related to higher number of mixed-sex antipathies (PN-L and SR) RAG related to fewer mutual friends (PR) |
| Johnson and Foster (2005) | 74 (33 girls) | $M = 5.8,$ $SD = .42$ | Peer (PN-U) | | RAG related to higher friendship conflict (SR), effect was moderated by social preference such that the association held for children who were highly disliked (PN-L) |
| Rose et al. (2004b) | 284 (152 girls) | 3rd and 5th | Peer (PN-L) | | RAG related to higher friendship conflict (SR), effect was moderated by perceived popularity such that the association held for children who were low on perceived popularity (PN-L) |
| Werner and Crick (2004) | 979 (537 girls) 1 yr (T1, T2) | 2nd–4th | Peer (PN-L) | | Girls only: Target's RAG (PN-L) related to friend's RAG (PN-L) At both T1 and T2, similarity of friends' RAG scores was higher among reciprocated friends as compared to unilateral friends Boys only: T1 RAG associated with friend T1 RAG Girls only: T2 RAG associated with friend T2 RAG |
| Rys and Bear (1997) | 131 (70 girls) | 3rd | Peer (PN-L) | Girls only: Percentage of RAG children with one or more reciprocal friends (SR, PR) did not differ from percentage of non-RAG children RAG related to higher levels of friendship intimacy (SR) RAG related to higher levels of friend self-disclosure (SR) RAG children equally likely to have mutual friendships when compared to non-RAG peers Friends of RAG children reported higher levels of intimacy (FR) in their friendships compared to friends of non-RAG children | |
| Grotzpetter and Crick (1996) | 315 (171 girls) | 9–12 | Peer (PN-L) | | Friends of RAG children reported higher levels of RAG in their friendships compared to friends of non-RAG children RAG related to higher levels of friendship exclusivity (SR) |

Please see Table 1 footnote for list of abbreviations

Table 10 Elementary school-age children: Dyadic-level findings of longitudinal associations between social aggression and adjustment outcomes

| Study | Sample | Age (years/ grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------------|--------------------------------------|--------------------------|-----------------------|-----------------------------------|---|
| Murray-Close et al. (2007) | 385 (185 girls) 1 yr (T1-T3) | 4th | Peer (PN-L) | | Girls only: Increases in self-disclosure by a close friend (SR) were associated with increases in RAg (PN-L) |
| Murray-Close and Crick (2006) | 590 (295 girls) 1 yr (T1-T3) | 4th | Peer (PN-L) | | Girls only: Increases in number of same-sex and mixed-sex antipathy relationships (PN-L and SR) were associated with time-dependent increases in RAg |
| Johnson and Foster (2005) | 74 (33 girls) 2 months (T1, T2) | $M = 5.8,$ $SD = .42$ | Peer (PN-U) | | T1 RAg predicted fewer T2 mutual friends (PR) |
| Werner and Crick (2004) | 979 (537 girls) 1 yr (T1, T2) | 2nd–4th | Peer (PN-L) | | Children who selected RAg friends at T1 were more likely to select friends who were RAg at T2, despite changing classrooms T1 RAg predicted T2 friend RAg Girls only: T1 Friend RAg predicted T2 RAg |

Please see Table 1 footnote for list of abbreviations

higher levels of teacher-reported general aggression (Crick et al. 2006b), and among boys only, higher levels of teacher-reported delinquency (Crick et al. 2006b). Woods and Wolke (2004) also found evidence that parent reports of their child's emotional problems (e.g., nightmares, bed wetting, woken in the night) predicted social aggression 2 years later. It is curious to note that the two studies documenting associations between social aggression and later internalizing distress (e.g., somatic complaints, anxious-depressive symptoms, withdrawal) involved solely teacher reports of children's internalizing symptoms (Crick et al. 2006b; Murray-Close et al. 2007). The teacher reports used in these studies were based on the internalizing broadband scale and the individual syndrome subscales of the Teacher Report Form of the Child Behavior Checklist (TRF; Achenbach 1991). There also is evidence to suggest that informant discrepancies may be most pronounced for behaviors or symptoms that are difficult to directly observe, and that attention to such discrepancies may be particularly important for measures of internalizing difficulties (see De Los Reyes and Kazdin 2005, for a review). Accordingly, future research would be well-served to examine social aggression as a predictor of psychological distress that is assessed by multiple informants. With respect to the externalizing outcome variables, the results of Crick et al. (2006b) are based on raw scores of the TRF externalizing syndrome subscales (e.g., aggression, delinquency). It is notable that items included in these subscales differed slightly for boys and girls such that the raw scores are

based on different items. Moreover, the delinquency subscale of the TRF was not intended as a measure of delinquent behavior as defined by breaking legal rules, but rather it represented a measure of general rule-breaking behavior (indeed, the delinquency subscale has since been renamed as the rule-breaking behavior syndrome subscale). As such, it follows that caution should be used when interpreting the meaning of reported mean group and gender differences in delinquency in this study.

In addition to studies assessing psychopathology, two longitudinal studies examined language abilities and academic achievement as predictors of social aggression. Woods and Wolke (2004) found that high academic achievement predicted high levels of social aggression 2 years later. Conversely, Park and colleagues (2005) reported that lower receptive language ability measured in preschool predicted higher social aggression in school-age children.

Taken together, results suggest that although the current evidence is largely weighted toward maladaptive outcomes, there may in fact be both positive and negative individual-level correlates of socially aggressive behavior in childhood. Moreover, findings related to individual measures of psychopathology or maladjustment are dominated by single informants, thus it is imperative that future studies include multiple reporters in order to more conclusively evaluate for whom and under what circumstances social aggression covaries with maladaptive and adaptive social behaviors.

Table 11 Elementary school-age children: Individual-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (years/grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------------|--|--|------------------------------|--|---|
| Marsee et al. (2008) | 83 (38 girls) | 6–17 (55% age 6–11) <i>M</i> = 11.09, <i>SD</i> = 3.38 | Self (SR) | | Boys only: Reactive RAg related to higher anxiety (SR) |
| Zimmer-Gembeck et al. (2007) | 334 (174 girls) | <i>M</i> = 11, <i>SD</i> = .9 | Peer (PN-L) | | RAg related to higher depressive symptoms (SR) |
| Andreou (2006) | 403 (189 girls) | <i>M</i> = 11.2, <i>SD</i> = .8 | Peer (PN-U) | RAg related to social information processing skills (PN-U) | |
| Crain et al. (2005) | 134 (all girls) | 4th–6th | Peer (PN-U) | RAg related to social awareness (PN-U) RAg related to fewer hostile attribution ratings (SR) | RAg related to increased likelihood of RAg response to a vignette involving relational provocation (SR) RAg related to positive evaluation of RAg as a response strategy (SR) |
| Werner and Nixon (2005) | 1,208 (569 girls) | 4th and 5th | Self (SR) | | RAg (SR) related to normative beliefs about RAg (i.e., retaliation and general beliefs) (SR) |
| Zalecki and Hinshaw (2004) | 228 (all girls) | 6–12 | Teacher (TR) Parent (PIR) | | Both ADHD-Combined and ADHD-Inattentive groups > on RAg (TR, PIR) compared to non-ADHD group |
| Musher-Eizenman et al. (2004) | 778 (422 girls) | <i>M</i> = 10.9, <i>SD</i> = 1.0 | Self (SR; IAg) | | IAg related to higher levels of impulsivity (SR) Social cognitions about IAg (SR) mediated link between exposure to aggression and anger control and IAg Retaliation approval for IAg (SR) mediated link between anger control (SR) and IAg |
| Crick et al. (2002b) | Study 1: 127 Study 2: 535 (271 girls) | 3rd (Study 1) 3rd–6th (Study 2) | Peer (PN-L) | | Fantasizing about IAg mediated paths between exposure to aggression, IVic, and anger control to IAg Study 1 and 2: RAg children exhibited more hostile attributions in response to relational provocations (SR) than non-RAg Study 1 and 2: Hostile attributional bias (SR) specific to relational provocation situations for RAg children and instrumental provocation for PAg Study 1: RAg children reported higher levels of emotional distress for relational provocations (SR) than non-RAg |
| Delveaux and Daniels (2000) | 273 (135 girls) | 8–13, <i>M</i> = 10 | Self (SR) | RAg conflict resolution strategies (SR) related to goals of personal control, avoiding trouble, and maintaining relationships among the peer group | RAg conflict resolution strategies (SR) related to goals of self-interest and revenge (SR) RAg conflict resolution strategies (SR) related to lower desire to maintain equality and relationships with a focal peer (SR) |
| Kaukiainen et al. (1999) | 166 | 10 | Peer (PR; VAg; IAg) | IAg related to higher social intelligence (SR) | IAg related to lower empathy (PR) VAg related to lower empathy (PR) |

Table 11 continued

| Study | Sample | Age (years/grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------|-------------------|-------------------|--------------------|---|--|
| Crick and Werner (1998) | 1,166 (588 girls) | 3rd–6th 9–12 | Peer (PN-L) | | Younger, RAg children evaluated RAg used in instrumental conflicts (SR) more positively than younger, non-RAg children Boys only: RAg boys evaluated RAg more positively than non-RAg boys Girls only: RAg related to higher withdrawn/depressed (PN-L) Combined RAg and OAg children more maladjusted (TR) than OAg, RAg, and non-Ag peers RAg related to higher maladjustment (TR) compared to non-RAg children; effect was moderated by gender such that RAg boys were viewed as more maladjusted (TR) than RAg girls RAg girls had higher maladjustment (TR) compared to non-Ag boys and girls RAg related to higher internalizing scores (TR) compared to non-Ag peers RAg related to higher externalizing scores (TR) compared to non-Ag peers Boys only: Combined RAg and OAg children more maladjusted (SR) than other groups (RAg, OAg, non-Ag boys and girls) Girls only: RAg and combined RAg and OAg related to higher maladjustment (SR) than non-Ag girls |
| Henington et al. (1998) | 904 (443 girls) | 2nd and 3rd | Peer (PN-L) | | |
| Crick (1997) | 1,166 (588 girls) | 9–12 | Peer (PN-L) | | |
| Crick et al. (1996) | 60 (32 girls) | 9–11 | Peer (PN-L) | Non-Ag children were equally as likely as RAg children to cite RAg as a normative aggressive response | |
| Crick (1995) | 252 (110 girls) | 3rd–6th | Peer (PN-L) | | RAg children were more likely than OAg children to report RAg as the norm for mean behavior in girl–girl interactions RAg related to more hostile attributional biases for relational provocation situations (SR) RAg related to heightened anger and distress in response to hypothetical relationship conflicts (SR) as compared to instrumental provocations (SR) |

Table 11 continued

| Study | Sample | Age (years/grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|----------------------------|-----------------|-------------------|--------------------|--------------------------------|--|
| Crick and Grotpeter (1995) | 491 (235 girls) | 3rd–6th | Peer (PN-L) | | RA _g related to higher depressive symptoms (SR) RA _g related to higher perceived social isolation (SR); effect stronger for girls Girls only: RA _g related to perceptions of poorer peer acceptance (SR) RA _g related to greater loneliness (SR) |

Please see Table 1 footnote for list of abbreviations

Middle School- and High School-Age Adolescents: A Review of Concurrent Associations and Longitudinal Outcomes

Group-Level Findings

Studies of peer status and social aggression among middle school and high school students have revealed a pattern of results that is relatively consistent with the patterns of concurrent and longitudinal findings observed in studies of elementary school-age children (Tables 13 and 14). Among adolescents, socially aggressive behavior (defined as indirect aggression) has been associated with higher peer acceptance among adolescent boys and lower peer rejection among adolescent girls (Salmivalli et al. 2000). High levels of social aggression also have been linked to higher levels of peer acceptance as compared to classmates (Cillessen and Borch 2006). Prinstein and Cillessen (2003) also reported a positive association between reactive social aggression (defined as engagement in socially aggressive behavior in response to feeling hurt, angered or upset) and social preference. However, similar to the findings of elementary school-age students (e.g., Murray-Close and Crick 2006; Werner and Crick 2004; Zimmer-Gembeck et al. 2007), Vaillancourt and Hymel (2006) reported more peer rejection among socially aggressive adolescent boys and girls. Lower social preference also has been linked to high levels of social aggression among adolescent boys and girls (Zimmer-Gembeck et al. 2005), and girls only (Lafontana and Cillessen 2002; Rys and Bear 1997). Interestingly, results of a cross-sectional study of middle school students revealed a negative association between social aggression and social preference in each of grades five through nine, and it was further noted that the strength of the association increased over time (Cillessen and Mayeux 2004). Findings from longitudinal studies in adolescent samples further suggest that social aggression may have a detrimental effect on social preference over time (e.g., Cillessen and Borch 2006; Cillessen and Mayeux 2004; Parker et al. 2005).

With respect to peer-perceived popularity, numerous studies of adolescents have revealed a pattern of positive associations between peer-perceived popularity and social aggression (e.g., Cillessen and Borch 2006; Cillessen and Mayeux 2004; Leadbeater et al. 2006; Vaillancourt and Hymel 2006). Prinstein and Cillessen (2003) also demonstrated that peer expert ratings of social aggression that were used proactively were positively related to reputation-based popularity, but not likeability. It is interesting to note that results of the Prinstein and Cillessen (2003) study were suggestive of curvilinear trends for the association between peer-perceived popularity and reputational aggression, a construct defined in terms of behaviors specifically aimed

Table 12 Elementary school-age children: Individual-level findings of longitudinal associations between social aggression and adjustment outcomes

| Study | Sample | Age (years/grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------------|---|---|---|--|--|
| Murray-Close et al. (2007) | 385 (185 girls) 1 yr (T1-T3) | 4th | Peer (PN-L) | | RAG trajectories related to increases in internalizing symptoms (TR) |
| Crick et al. (2006) | 224 (113 girls) 1 yr (T1, T2) | 3rd | Peer (PN-L) | | T1 RAG group had greater increases in T2 somatic complaints (TR) than nonaggressive group T1 RAG predicted higher T2 withdrawn behavior (TR), effect stronger for boys T1 RAG predicted higher T2 anxious-depressive symptoms (TR) T1 RAG predicted higher T2 aggression (TR) Boys only: T1 RAG predicted higher T2 delinquency (TR) *TR is based on individual syndrome subscales of the teacher report form (TRF, Achenbach 1991) Increases in PAG were associated with time-dependent increases in RAG |
| Murray-Close and Crick (2006) | 590 (295 girls) 1 yr (T1-T3) | 4th | Peer (PN-L) | | |
| Crick et al. (2005) | 400 (216 girls) 1 yr (T1-T3) | 4th–6th | Teacher (TR) | | T1 RAG predicted time-dependent increases in T2 and T3 borderline personality features (SR) Change in borderline personality features over time (SR) was positively associated with change in RAG Higher RAG at T3-T5 predicted lower T2 receptive language abilities (SR) Higher RAG at T3-T5 predicted by T2 angry/impulsive temperament (OB) and concurrent exposure to T1/T2 paternal depression symptoms (SR) T2 prosocial and affiliation themes in narrative stories (SR) predicted lower likelihood of T4 VAg/Postural Ag* Girls only: T2 Sadness (SR) predicted a higher ratio at T4 of RAG to OAg* *Pearson product-moment correlations |
| Park et al. (2005) | 207 (107 girls) 10 years (8 time points; T1 = infancy, T2 = preschool, T3 = 1st, T4 = 3rd, T5 = 5th) | 1st, 3rd, 5th | T3-T5 composite: Parent (Pr) Self (SR) Teacher (TR) | | |
| Zahn-Waxler et al. (2005) | 77 (30 girls) at T2 | At T2: M = 7.04 | Self (SR; VAg/Postural Ag) | | |
| Woods and Wolke (2004) | 54 (18 girls) at T4 1,016 (518 girls) 2 years (T1, T2) | At T4: M = 13.4, SD = .55 9 years (4 time points; T1 = 4–5, T2 = 7, T4 = 13) 6–7 2 years (T1, T2) | Interview | Higher T1 academic achievement predicted higher T2 RAG | |

Please see Table 1 footnote for list of abbreviations

Table 13 Middle and high school-age adolescents: Group-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (years/grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------------|------------------|-----------------------------|--------------------|---|---|
| Hawley et al. (2008) | 1723 (913 girls) | $M = 14, SD = 1.63$ | Self (SR) | Boys only: Bistrategic (SR) higher in RAg than all other groups (prosocial, coercive, typical, non-controller) of boys and girls Girls only: Bistrategic (SR) higher in RAg than overall group average | Boys and girls: Coercively controlling (SR) higher in RAg than the overall group average Prosocial and Non-controlling (SR) among the least RAg |
| Cillessen and Borch (2006) | 303 (167 girls) | 5th–12th 8 years (T1–T8) | Peer (PN-U) | T1 RAg related to higher T1 peer-perceived popularity (PN-U) T1 RAg related to higher T1 starting values of peer acceptance (PN-U) | |
| Leadbeater et al. (2006) | 449 (223 girls) | 13–16.8, $M = 14.8$ | Self (SR) | RAg related to higher receipt of prosocial attention (SR) RAg related to higher levels of popularity than typical (i.e., non-RAg) youth (SR) | RAg related to fewer prosocial acts (SR) |
| Sullivan et al. (2006) | 276 (158 girls) | $M = 14.5, SD = .5$ | Self (SR) | | RAg related to higher R _{vic} (SR), stronger effect for boys than girls Boys only: RAg related to higher P _{vic} (SR) |
| Vaillancourt and Hymel (2006) | 585 (287 girls) | 11–17 | Peer (PN-U) | RAg related to higher perceived power (PN-U) RAg related to higher perceived popularity (PN-U) The effects of perceived power and perceived popularity on RAg were moderated by peer-valued characteristics (e.g., dressing well, sports ability); RAg was associated with greater perceived power and perceived popularity for individuals with more peer-valued characteristics | RAg related to lower social preference (PN-U), stronger effect for girls than boys, regardless of their peer-valued characteristics |
| Zimmer-Gembeck et al. (2005) | 458 (229 girls) | 6th grade | Peer (PN-L) | RAg related to greater social impact (acceptance + rejection) (PN-L); effect was stronger among boys than girls | RAg related to lower social preference (PN-L); effect was stronger among boys than girls |
| Cillessen and Mayeux (2004) | 905 (440 girls) | 10–14 | Peer (PN-U) | RAg related to higher perceived popularity (PN-U) in each grade (grades 5–9); strength of effect increased over time and was stronger for girls than boys | RAg related to lower social preference (PN-U) in each grade (grades 5–9); strength of effect increased over time, and the effect was stronger for girls than boys in both 7th and 8th grade |
| Rose et al. (2004b) | 323 (170 girls) | 7th and 9th | Peer (PN-L) | RAg related to higher perceived popularity (PN-L) | |

Table 13 continued

| Study | Sample | Age (years/grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|--------------------------------|--|--|--|--|--|
| Prinstein and Cillessen (2003) | 235 (137 girls) | $M = 16.31, SD = .50$ | Peer (PN-U; RepAg, RAg) | High RepAg related to high peer-perceived popularity (PN-U) High RAg related to high peer-perceived popularity (PN-U) High instrumental RepAg related to high social preference (PN-U) High reactive RAg related to high peer-perceived popularity (PN-U) High reactive RAg related to high social preference (PN-U) | High RepAg related to low peer-perceived popularity (PN-U) High RAg related to low peer-perceived popularity (PN-U) |
| LaFontana and Cillessen (2002) | 408 (200 girls) | $M = 11.8, SD = 1.6$ | Peer (PN-U) | Girls only: High instrumental RAg related to high peer-perceived popularity (PN-U) In 6th, 7th, and 8th grade children only: RAg related to high perceived popularity (PN-U) | Girls only: RAg related to lower social preference (PN-U) |
| Xie et al. (2002a) | 510 (116 girls in 4th grade, 155 girls in 7th grade) | Cohort 1: $M = 10.2, SD = .57$ Cohort 2: $M = 13.2, SD = .64$ | Peer narrative report (SAG) | SAG related to high social network centrality (PN-U) SAG related to medium social network centrality (PN-U) | |
| Xie et al. (2002b) | 475 (248 girls) | $M = 13.4, SD = .58$ | Peer narrative report (SAG, VAg, Direct RAg) | SAG related to higher levels of social network centrality (PN-U) Direct RAg related to higher scores of popularity (TR) | |
| Salmivalli et al. (2000) | 209 (120 girls) | 15–16 | Peer (PR; VAg, IAg) | Boys only: IAg related to higher social acceptance (PN-L) Girls only: IAg related to lower social rejection (PN-L) | VAg related to higher peer rejection (PN-L) |
| Rys and Bear (1997) | 135 (64 girls) | 6th | Peer (PN-L) | IAg related to lower social rejection (PN-L) | Girls only: RAg related to higher peer rejection (PN-L) |

Please see Table 1 footnote for list of abbreviations

Table 14 Middle and high school-age adolescents: Group-level findings of longitudinal associations between social aggression and adjustment outcomes

| Study | Sample | Age (years/ grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|--------------------------------|-----------------|----------------------------------|-------------------------------|---|---|
| Cillessen and Borch (2006) | 303 (167 girls) | 5th–12th 8 years (T1-T8) | Peer (PN-U) | At high levels of RAg, perceived popularity (PN-U) declined over time; however, scores remained high | RAg associated with decreases in peer acceptance over time (PN-U) |
| Cillessen and Mayeux (2004) | 905 (440 girls) | 10–14 5 years (T1-T5) | Peer (PN-U) | RAg increasingly predictive of perceived popularity (PN-U), but not across school transitions Perceived popularity (PN-U) predicted RAg 1 year later across each interval. | Increases in RAg associated with lower social preference (PN-U); effect stronger for girls Social preference (PN-U) predicted lower RAg for the first 3 years, but effect was weaker for girls across the high school transition |
| Rose et al. (2004b) | 487 (247 girls) | 7th and 9th 6 months (T1, T2) | Peer (PN-L) | T1 perceived popularity predicted T2 RAg Girls only: T1 RAg predicted T2 perceived popularity (PN-L) | |
| Prinstein and Cillessen (2003) | 159 (97 girls) | 12th at T2 17 months (T1, T2) | Peer (PN-U; RepAg, RAg) | T1 High perceived popularity (PN-U) predicted higher T2 RAg T1 High perceived popularity (PN-U) predicted higher T2 RepAg | T1 Low perceived popularity (PN-U) predicted high T2 RAg T1 High reactive RepAg related to predicted low T2 social preference (PN-U) |

Please see Table 1 footnote for list of abbreviations

at damaging a person's social reputation (as compared to behaviors that involve using relationships to inflict harm on others). In this study, both high and low levels of perceived popularity predicted increases in social aggression across a 17-month period. Finally, concurrent findings linking high levels of social aggression to high social levels of social network centrality among fourth through seventh-grade students (Xie et al. 2002a; b), and social impact among sixth-grade students (Zimmer-Gembeck et al. 2005).

Several interesting developmental trends emerge when comparing results of studies of elementary school-age students to studies involving middle school and high school-age students. Indeed, although Andreou (2006) and Lease et al. (2002) reported positive associations between peer-perceived popularity and social aggression in younger samples, findings from longitudinal studies that included a range of child, pre-adolescent, and adolescent participants, suggest that developmental issues may be implicated in fully understanding these associations. For example, Rose et al. (2004b) reported that peer-perceived popularity was positively related to social aggression among seventh and ninth-grade students at three separate assessments, whereas the association was only observed at one assessment point among fifth-grade students, and there was no association observed among third-grade students. In addition, Rose et al. (2004b) found that for students in seventh and ninth grade, social aggression predicted increases in peer-

perceived popularity over a six-month period, but only for girls. Similar findings have subsequently been reported by Cillessen and Mayeux (2004) who found that positive links between social aggression and peer-perceived popularity became progressively more pronounced in older age groups (between fifth through ninth grades), and that the effect was stronger for girls than boys. Similarly, Cillessen and Mayeux (2004) reported that social aggression was increasingly predictive of peer-perceived popularity in students from ages 10–14, with the exception of during periods of school transitions. These findings underscore the importance of considering bidirectional relationships between social status and aggression, and how the nature of these bidirectional relations may vary by age and gender.

There is preliminary evidence that whereas social aggression may reciprocally influence reputation-based popularity for adolescent girls, adolescent boys' social aggression may be more of an outcome of reputation-based popularity than a cause (Cillessen and Mayeux 2004; Rose et al. 2004b; Zimmer-Gembeck et al. 2005). This differential association may reflect the fact that social aggression is considered less gender-normative for boys than girls, and as such, it is likely that engaging in socially aggressive behavior would not lead to increases in peer-perceived popularity for boys. Findings further suggest there may be developmental differences in the temporal ordering of these causal associations for boys and girls (Rose et al.

Table 15 Middle and high school-age adolescents: Dyadic-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (years/grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|----------------------------|-------------------|------------------------------|--------------------------|---|--|
| Hawley et al. (2007a) | 929 (522 girls) | $M = 14.65$, $SD = 1.25$ | Peer (PN-L) | | <p>Bistrategic and coercive (PN-L) boys demonstrate highest levels of RAg within friendships</p> <p>Bistrategic girls (PN-L) demonstrate highest levels of RAg within friendships relative to all girls, but level is equal to lowest level reported by boys</p> <p>RAg (SR) related to higher friendship conflict (SR)</p> <p>RAg (SR) related to lower positive friendship qualities (SR)</p> <p>RAg (SR) was not associated with friend-reported positive or negative friendship qualities</p> <p>Boys only:</p> <p>RAg (PN-U) related to higher friendship conflict (SR)</p> <p>RAg related to higher friend reported jealousy (PN-U)</p> <p>RAg related to higher non-friend reported jealousy (PN-U)</p> |
| Cillessen et al. (2005) | 224 (142 girls) | 15–17 | Self (SR) Peer (PN-U) | | |
| Parker et al. (2005) | 399 (188 girls) | 5th–9th | Peer (PN-U; SAg) | | |
| Goldstein and Tisak (2004) | 292 (141 girls) | $M = 16.7$, $SD = 2.61$ | Self (SR) | In response to RAg vignettes of friends, high RAg was associated with higher optimism about friendship continuing (SR) | High RAg associated with beliefs that friends would retaliate in response to RAg High RAg associated with beliefs that being target of RVic would have less significant emotional consequences |
| Rose et al. (2004a) | 323 (170 girls) | 7rd and 9th | Peer (PN-L) | | <p>RAg related to higher friendship conflict (SR), effect was moderated by social preference such that the association held for children who were highly disliked (PN-L)</p> <p>RAg related to higher friendship conflict (SR), effect was moderated by perceived popularity such that the association held for children who were low on perceived popularity (PN-L)</p> <p>Target's RAg (PN-L) related to friend's RAg (PN-L)</p> <p>Friends of instrumentally aggressive youth (SR) saw them as more RAg (PN-L) than friends of typical group youth</p> <p>Youth who use reactive and instrumental aggression (SR) are more RAg (PN-L) according to reciprocal best friend nominations</p> |
| Little et al. (2003) | 1,723 (913 girls) | $M = 14$, $SD = 1.63$ | Self (SR) Peer (PN-L) | | |
| Rys and Bear (1997) | 135 (64 girls) | 3rd and 6th | Peer (PN-L) | Girls only: Percentage of RAg with one or more reciprocal friends (SR, PR) did not differ from percentage of non-RAg | |

Please see Table 1 footnote for list of abbreviations

Table 16 Middle and high school-age adolescents: Individual-level findings for concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (years/ grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------|--|--|---|---|---|
| Marsee and Frick (2007) | 58 (all girls) | $M = 14.98$, $SD = 1.3$ | Self (SR); reactive RAg, proactive RAg) | | Reactive RAg related to anger to provocation (SR) Proactive RAg related to higher callous-unemotional traits (SR) |
| Loukas et al. (2005) | 745 (398 girls) | 6th and 7th, $M = 11.81$, $SD = .76$ | Self (SR) | | SAG related to higher dispositional social evaluative anxiety (SR) Girls only: SAG related to greater maternal psychological control (SR); effect partially mediated by dispositional social evaluative anxiety (SR) |
| Little et al. (2003) | 1,723 | 5th–10th, $M = 14.0$ | Self (SR); RAg, RAg-reactive, RAg-instrumental) Parent (PTR) Teacher (TR) | RAG (TR) was highest for typical youth (SR) than for the other groups | RAG (SR) was higher for the neither group (i.e. low on instrumental and reactive Ag) than for the other groups RAG (TR) was lower for instrumentally aggressive youth (SR) than for the other groups RAG (PTR) were higher among the reactive aggressive youth (SR) than among other groups VAg related to higher aggression (TR) VAg related to lower academic competence (TR) |
| Xie et al. (2002b) | 475 (248 girls) | $M = 13.4$, $SD = .58$ | Peer narrative report (VAg, Direct RAg) | Direct RAg related to higher scores of “Olympian” (i.e., good at sports, win, good-looking; TR) Direct RAg related to higher scores of affiliation (TR) | VAg related to lower “Olympian” (i.e., good at sports, win, good-looking; TR) |
| Xie et al. (2002a) | 510 (116 girls in 4th grade, 155 girls in 7th grade) | Cohort 1: $M = 10.2$, $SD = .57$ Cohort 2: $M = 13.2$, $SD = .64$ | Self (SR); SAg) Peer narrative report (PR; SAg) Teacher (TR) | SAg (SR) related to higher scores of “Olympian” (i.e., good at sports, win, good-looking; TR) SAg (SR) related to “get my way” (TR) SAg (PR) related to “get my way” (TR) | |
| Moretti et al. (2001) | 84 (32 girls) | 11–17 | Self (SR) | | RAG related to higher negativity of self-representation (SR); effect stronger for girls than boys RAG related to higher negativity of peer representations of the self (SR) and higher levels of RAg in girls and lower levels of RAg in boys Girls only: RAG related to higher negativity of paternal representations of the self (SR) |

Table 16 continued

| Study | Sample | Age (years/ grade) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|--------------------------|----------------------------|-----------------------|---------------------|----------------------------------|---|
| Prinstein et al. (2001) | 566 (313 girls) | 9th–12th | Self (SR) | | Combined RAg and OAg associated with higher levels of externalizing behavior (SR) For RAg and combined RAg and OAg, boys had higher loneliness (SR) than RAg girls Girls only: RAg and externalizing behavior (SR) VAg and lower empathy (PR) 14-year-old only: IAg and lower empathy (PR) |
| Kaukiainen et al. (1999) | 194 (age 12), 156 (age 14) | 12, 14 | Peer (PR; VAg, IAg) | IAg and social intelligence (SR) | |

Please see Table 1 footnote for list of abbreviations

2004b). Specifically, Rose et al. 2004b reported that positive associations between aggression and reputation-based popularity were observed for seventh- and ninth-grade girls, but not for third- and fifth-grade girls. These results support the proposal that the strategic employment of social aggression requires advanced interpersonal and social-cognitive skills that are not well-developed in younger children.

Dyadic-Level Findings

To date, several concurrent studies have examined friendship variables in middle school and high school samples; however, no longitudinal studies have been reported (Table 15). In terms of findings related to the number of reciprocated friendships, as noted in above in the discussion of elementary school-age children, Rys and Bear (1997) found that in a sample of third and sixth-grade girls, the percentage of socially aggressive girls with one or more reciprocated friendships did not differ from the percentage of their non-socially aggressive counterparts. Unfortunately, the results were based on collapsing across grades because of small cell sizes, which makes it difficult to ascertain whether this finding would be consistent across age groups.

Relatively few studies have examined the effects of social aggression on changes in friendship quality among adolescents. Cillessen and colleagues (2005) reported that within reciprocated friendships, peer nominations of social aggression did not predict positive friendship quality for either boys or girls, but did predict self-reports of higher friendship conflict for boys. It is interesting to note that they also found that peer nominations of social aggression were not correlated with self-reported friendship quality, whereas self-ratings of social aggression were in fact correlated with both positive and negative friendship quality (Cillessen et al. 2005). Since it was determined that this finding was not entirely the result of a lack of shared variance between peer nominations and ratings of friendship quality, it was proposed that the lack of correlation is evidence that social aggression may function as a “double-edged sword” in friendships (Cillessen et al. 2005). This contention garners support from ethological and social learning theories which suggest that the negative consequences associated with aggressive behavior are coupled with seemingly paradoxical advantages, including increased attention to the aggressor’s needs and ascension of dominance in the peer group. Notably, Rose et al. (2004a) found that the association between self-reported friendship conflict and relational aggression was moderated by social preference and peer-perceived popularity. Specifically, friendship conflict was positively associated with high levels of relational aggression for children who were

Table 17 Young adult: Group-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (years) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------|-----------------|-----------------------------|--------------------|--------------------------------|---|
| Storch et al. (2003) | 105 (51 women) | $M = 19.9$, $SD = 1.58$ | Peer (PN-L) | | RAg related to higher peer rejection (PN-L) |
| Werner and Crick (1999) | 225 (124 women) | 18–23 $M = 19.5$ | Peer (PN-L) | | RAg related to higher peer rejection (PN-L) |

Please see Table 1 footnote for list of abbreviations

Table 18 Young adult: Dyadic-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (years) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------|-----------------|----------------------------|--------------------|--------------------------------|--|
| Goldstein et al. (2008) | 479 (366 women) | $M = 20.6$, $SD = 2.7$ | Self (SR) | | RAg related to greater exclusivity in romantic relationships (SR) |
| Linder et al. (2002) | 104 (34 women) | $M = 20.6$, $SD = 2.7$ | Self (SR) | | RAg related to higher negative peer and parent relationship qualities (i.e., frustration, ambivalence, lower trust, jealousy, anxious clinging) (SR) RAg related to lower positive relationship qualities (SR) RAg related to higher levels of mother alienation (SR) RAg related to greater perceived peer alienation (SR) |

Please see Table 1 footnote for list of abbreviations

highly disliked or perceived as unpopular by their peers. This compelling finding highlights the importance of examining how different social contexts may be implicated in understanding linear associations between friendship quality and social aggression.

With respect to gender differences, Cillessen and colleagues (2005) reported that peer nominations of relational aggression were only associated with higher levels of self-reported friendship conflict among boys. Interestingly, Hawley et al. (2007a) found that bistrategic and coercive controlling boys demonstrate the highest levels of peer-nominated relational aggression within friendships. This finding is in contrast to bistrategic girls who evinced the highest level of relational aggression within friendships relative to all girls, but the highest level among bistrategic girls was equal to the lowest level reported for boys.

Individual-Level Findings

In contrast to the emphasis on maladaptive correlates in studies of elementary school-age children, a number of studies have documented concurrent links between social aggression and positive indices of individual adjustment among adolescents (Table 16). For example, social aggression has been positively associated with teacher ratings of “Olympian” characteristics (i.e., good at sports, good-looking) (Xie et al. 2002a, b) and with the ability to influence peers (i.e., “get your way”) (Xie et al. 2002a).

These findings are consistent with the ethological perspective detailed in Hawley’s (1999) resource control theory. Specifically, Hawley (1999, 2003a) has argued that individuals who balance prosocial and coercive strategies are socially central and dominant in the peer group, and also possess the social skills generally associated with emotional intelligence. Additional support for this theory comes from findings of positive associations between self-reports of indirect aggression and peer-reported social intelligence among samples of 10-, 12-, and 14-year-old participants (Kaukiainen et al. 1999).

In terms of other indices of psychopathology and maladjustment, findings of both concurrent externalizing and internalizing difficulties have been documented in several studies. Specifically, social aggression has been positively associated with self-reported externalizing behavior among girls (Prinstein et al. 2001) and anger to provocation (Marsee and Frick 2007). Proactive forms of social aggression also have been positively associated with self-reports of callous-unemotional traits (Marsee and Frick 2007). In a similar vein, Kaukiainen and colleagues (1999) found that verbal aggression predicted lower peer-reported empathy among middle school students, and indirect aggression was reportedly associated with lower peer-reported empathy. Social aggression also has been linked to a variety of internalizing difficulties, including high levels of dispositional social evaluative anxiety (Loukas et al. 2005) and negativity of self-representation (Moretti et al.

Table 19 Young adult: Individual-level findings of concurrent associations between social aggression and adjustment outcomes

| Study | Sample | Age (years) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|---------------------------|-----------------|--|--|--------------------------------|--|
| Ostrov and Houston (2008) | 679 (341 women) | $M = 18.9, SD = 1.11$ | SR (SR; proactive RAg, reactive RAg) | | Reactive RAg related to fearless dominance (SR) Reactive RAg related to impulsive antisociality (SR) Proactive RAg related to borderline personality disorder features (SR) Reactive RAg related to borderline personality disorder features (SR) Proactive RAg related to antisocial personality disorder features (SR) Women only: |
| Bailey and Ostrov (2008) | 165 (83 women) | $M = 19.05, SD = 1.55$ | Self (SR; proactive RAg, reactive RAg) | | Proactive RAg related to impulsive antisociality (SR) Reactive RAg related to hostile attribution biases for instrumental provocation situations (SR) Proactive RAg related to normative beliefs about the acceptability of aggression (SR) |
| Goldstein et al. (2008) | 479 (366 women) | $M = 20.6, SD = 2.7$ | Self (SR) | | RAg related to higher general rumination (SR) RAg related to higher anger in conflict (SR) RAg related to higher anxiety symptoms (SR) RAg related to higher depressive symptoms (SR) RAg related to anxious attachment pattern (SR) RAg related to avoidant attachment pattern (SR) RAg related to higher social anxiety about dating relationships (SR) High RAg/high RVic group reported more dating rumination (SR) than high RAg/low RVic and non-RAg groups |
| Lento-Zwolinski (2007) | 329 (221 women) | $M = 18.95, SD = 1.12$ | Self (SR; reactive RAg) | | RAg related to exclusivity in intimate relationships (SR) Men only: |
| Bagner et al. (2007) | 215 (163 women) | $M = 21.14, SD = 3.19$ | Self (SR; romantic RAg) | | RAg related to lower prosocial behavior (SR) Romantic RAg related to higher social anxiety (SR)* Romantic RAg related to higher loneliness (SR)* Romantic RAg related to higher depressive symptoms (SR)* Romantic RAg related to higher alcohol use (SR)* Romantic RAg related to higher drug use (SR)* *Pearson product-moment correlations |
| Burton et al. (2007) | 134 (93 women) | Men: $M = 19.3, SD = 1.1$ Women: $M = 20, SD = 4.4$ | Self (SR) | | RAg related to lower agreeableness(SR) RAg related to poorer emotional understanding (SR) RAg related to poorer overall functioning (SR) Men only: RAg related to higher neuroticism (SR) Women only: RAg related to lower conscientiousness (SR) |

Table 19 continued

| Study | Sample | Age (years) | Aggression measure | Indices of positive adjustment | Indices of negative adjustment |
|-------------------------|-----------------|------------------------------|--------------------|---|--|
| Storch et al. (2004) | 303 (287 women) | $M = 21.20$, $SD = 3.21$ | Self (SR) | | Women only: RAG related to higher social anxiety (SR) RAG related to higher loneliness (SR) RAG related to higher depression (SR) RAG related to higher alcohol use (SR) RAG related to higher drug use (SR) RAG related to lower levels of perspective taking (SR) RAG related to greater fear of negative evaluation (SR) |
| Loudin et al. (2003) | 300 (203 women) | 19–25 | Self (SR) | | Men only: Lower empathetic concern (SR) RAG related to psychopathy (SR); effect stronger for women |
| Miller and Lynam (2003) | 211 (106 women) | $M = 19.05$, $SD = 1.55$ | Self (SR) | | |
| Storch et al. (2003) | 105 (51 women) | $M = 19.9$, $SD = 1.58$ | Peer (PN-L) | | Women only: RAG related to alcohol problems (SR) |
| Werner and Crick (1999) | 225 (124 women) | 18–23, $M = 19.5$ | Peer (PN-L) | RAG related to higher prosocial behavior (PN-L) | RAG related to lower prosocial behavior (PN-L) RAG related to higher stimulus-seeking (SR) RAG related to higher egocentricity (SR) RAG related to higher affective instability (SR) RAG related to higher negative relationships (SR) RAG related to higher self-harm (SR) Women only: RAG related to higher bulimia symptoms (SR) |

Please see Table 1 footnote for list of abbreviations

2001). It is important to note, however, relatively few studies have examined individual adjustment outcomes associated with social aggression in adolescence, and it may be especially important to consider the potential moderating influence of the social context on these links. For example, Prinstein and colleagues (2001) did not find an association between loneliness and social aggression, but did report that socially aggressive boys reported more loneliness than did socially aggressive girls. This finding highlights the importance of considering the possibility that the risk of maladjustment associated with social aggression may be tied to gender norms within particular peer contexts. It has been contended that adolescents who engage in gender non-normative forms of aggression (i.e., socially aggressive boys, physically aggressive girls) may be at a somewhat heightened risk for adjustment difficulties (e.g., Crick 1997). Thus, consideration of the gender norms of a given peer culture may be an important source of information regarding the adaptation of socially aggressive adolescents.

Early Adulthood: A Review of Concurrent Associations and Longitudinal Outcomes

Although the study of social aggression in early adulthood (i.e., college-age) remains in its nascent stages, preliminary evidence suggests that conceptualizing the effect of social aggressive behavior at multiple levels (i.e., group, dyad, individual) will likely offer important insights into factors that maintain and promote social aggression and relevant adjustment correlates.

Group- and Dyadic-Level Findings

To date, two studies reported concurrent associations between peer-nominated social aggression and higher levels of peer rejection (Storch et al. 2003; Werner and Crick 1999) (see Table 17). At the dyadic level, self-reports of social aggression have been linked to exclusivity in romantic relationships (Goldstein et al. 2008; Lento-Zwolinski 2007), lower positive relationship qualities (Linder et al. 2002), perceived peer alienation and higher levels of perceived mother alienation (Linder et al. 2002), and higher negative peer and parent relationship qualities (Linder et al. 2002) (Table 18).

Individual-Level Findings

In contrast to the relative dearth of studies at the group and dyadic levels, research on individual psychosocial adjustment among socially aggressive young adults has expanded considerably over the past several years (Table 19). At

present, self-reported social aggression has been associated with a variety of internalizing difficulties, including rumination (Goldstein et al. 2008), anxiety and depressive symptoms (Bagner et al. 2007; Goldstein et al. 2008), fear of negative evaluation (Loudin et al. 2003), affective instability (Werner and Crick 1999), and self-harm behaviors (Werner and Crick 1999). Bagner and colleagues (2007) found a similar pattern of results related to romantic relational aggression, wherein high levels were correlated with social anxiety, loneliness, and depressive symptoms. In terms of gender differences, Storch et al. (2004) found that social aggression was significantly correlated with social anxiety, loneliness, and depression among women. Finally, Werner and Crick (1999) also reported a link between peer-nominated social aggression and bulimia symptoms in women.

With respect to other psychosocial correlates, self-reported social aggression has been associated with lower agreeableness and poorer emotional understanding (Burton et al. 2007), lower levels of perspective taking (Loudin et al. 2003), psychopathic personality features (Miller and Lynam 2003), egocentricity and stimulus-seeking (Werner and Crick 1999), and alcohol and drug use (Bagner et al. 2007). Several gender differences also were noted. Specifically, Burton and colleagues (2007) reported associations between neuroticism and self-reported social aggression among men but not women, and lower conscientiousness among women but not men. Storch and colleagues found significant correlations between social aggression and alcohol (2003, 2004) and drug use (2004), but only for women. Furthermore, socially aggressive men demonstrated lower empathetic concern (Loudin et al. 2003) and prosocial behavior (Lento-Zwolinski 2007). In terms of contrasting proactive and reactive functions, Ostrov and Houston (2008) recently reported that self-reports of proactive and reactive social aggression were associated with borderline personality disorder features, and proactive social aggression was associated with anti-social personality disorder features. Bailey and Ostrov (2008) also demonstrated links between reactive social aggression and hostile attribution biases for instrumental provocation situations, and proactive social aggression and normative beliefs about the acceptability of aggressive behavioral responses.

In conclusion, research on social aggression among young adults remains in its early stages; however, further investigations, including prospective studies, are clearly needed to generate a more complete understanding of the social aggression phenomenon in this age group. It is noteworthy that only one study found evidence of an association between social aggression and positive adjustment; Werner and Crick (1999) observed an association between peer nominations of social aggression and

prosocial behavior. It may be that socially aggressive behavior does not confer any positive benefits as individuals reach adulthood; however, given existing theoretical conceptualizations of social aggression, it seems likely that the lack of evidence to support positive indices of adjustment may be more a function of a failure to assess for such features or of current measurement strategies. Correspondingly, it is critical that future research include both positive and negative indices relevant to peer status, friendship functioning, and psychosocial adjustment in order to inform the iterative process of hypothesis-testing and refining theory, thus advancing the knowledge base.

Methodological Considerations and Future Research Directions

Future research would benefit by addressing several key methodological issues. First, although research involving self- and peer-report methodologies clearly offers a significant contribution to the literature, such methods present inherent limitations. For example, peer nomination measures of aggression are predicated on the assumption that aggressive behavior is a trait-like characteristic that is consistent across social situations. Moreover, given that social aggression may be confrontational (e.g., publicly excluding a peer from the social group) or nonconfrontational (e.g., character defamation, gossip), peer nomination measures of social aggression may identify social aggressors who typically engage in confrontational behaviors such that they are more likely to be nominated within the peer group. It also is possible that peer nominations may identify individuals who are arguably less skillful in their strategic use of nonconfrontational aggressive behaviors. Although it is acknowledged that peer nomination procedures reliably identify individuals who are highly overtly and socially aggressive, it may be that there are highly socially aggressive individuals who are extremely skillful in their aggressive acts such that they are less likely to be identified as social aggressors by the broader network of peers. Indeed, engagement in social aggression that occurs within dyads is not necessarily known to the larger peer network. It may be the case that individuals who are identified as highly socially aggressive through peer nominations are generally less effective in their use of the behaviors. If this were in fact true, it follows that as compared to their more skillful counterparts, these individuals may be less likely to reap the social rewards associated with social aggression. Accordingly, peer nomination methodologies may present challenges to understanding the nature of associations between more nuanced and skillful social aggression and social-psychological adjustment. Perhaps consideration of peer

nominations from within friendship dyads (i.e., friend-report) would provide a useful strategy for assessing social aggression in that informants would be privy to socially aggressive behaviors that may not have been known to all group members.

To address the potential limitations of peer nomination measures, a multi-method, multi-informant assessment of social aggression, including sociometric data and self- and friend-reports, would provide an important improvement in future research. Moreover, to generate a more comprehensive understanding of why social aggression may be positively associated with various adaptive outcomes and friendship qualities, closer examination of the interpersonal context will provide insight into the mechanisms that underlie the positive associations. An observational methodology designed to study the social processes and contexts in which the behavior occurs may provide important information about the various functions served by social aggression in dyads or groups (Parker and Gottman 1989). Although it has been argued that observing social aggression in a laboratory setting may be extremely difficult or lacking ecological validity because the behaviors being observed are often subtle and may require considerable knowledge about the peer group to be correctly interpreted, more recent research has revealed that it is possible to observe and reliably code socially aggressive behaviors using a paradigm similar to that of Feshbach (1969) in which pairs of friends interact with a peer confederate (e.g., Galen and Underwood 1997; Underwood and Buhrmester 2007; Underwood et al. 2004). Given that social aggression is an interpersonal phenomenon involving behaviors embedded in a social context, it is imperative that studies begin to include observational analyses.

Future research that employs innovative methodologies to study social aggression would provide important information regarding the different functions served by the behaviors in particular social contexts (see Hubbard et al. 2002, for an excellent example). Indeed, the use of the social context in the determination of whether behavior is aggressive raises an issue of critical importance in the study of human aggression, namely the problem of confounding form (i.e., how an individual aggresses) and function (i.e., why an individual aggresses). Unfortunately, the majority of previous studies have not elaborated differences between the form and function of aggressive behavior (Underwood 2003). Although the distinctiveness of various dimensions or subtypes of aggression (e.g., proactive versus reactive, hostile versus instrumental) has garnered support in the empirical literature (e.g., Atkins and Stoff 1993; Poulin and Boivin 1999, 2000), efforts to explain differences in subtypes through consideration of the means of harm or the goal of the behavior are complicated by the fact that any form of aggression may be

hurtful in multiple ways and may serve multiple goals (Underwood et al. 2001).

The lack of a functional perspective presents several significant limitations to the current conceptualization and treatment of forms of socially aggressive behavior. For example, because some aggression is considered normative and may confer adaptive benefits during childhood and adolescence, knowledge of how such behavior functions in particular contexts is essential for informing appropriate intervention strategies (Little et al. 2003). In addition to the value of a theoretically based subclassification of forms and functions of aggression, attention to developmental factors is of critical importance in advancing current conceptualizations of socially aggressive behaviors. It is widely acknowledged that the form and function of aggression change over time, and that such changes result from both maturational factors within the child and emergent changes in social interactions and environmental expectations (Pepler and Craig 2005). Indeed, findings suggest that aggressive behavior is most prevalent for boys and girls during the toddler years and that the developmental sequence of aggression begins with physical forms, such as hitting and pushing (e.g., Cairns et al. 1989; Tremblay 2000). As children develop more advanced social and verbal skills in the preschool period, a decline in physically aggressive behaviors is observed and children are more likely to use verbally and socially aggressive strategies (Björkqvist et al. 1992a). Although a considerable body of research outlines concurrent associations and future negative outcomes for physically and verbally aggressive children, studies of the functions of aggressive behavior in particular developmental contexts have revealed a variety of potential normative and prosocial functions (e.g., Hawley 2003a; Vaughn et al. 2003). As such, it is important that the focus on negative psychological and behavioral outcomes does not preclude the possibility that in certain social and developmental contexts, both physical and nonphysical aggression may be associated with adaptive as well as maladaptive outcomes (Underwood 2003).

Future studies would clearly benefit from exploring the role of developmental stage in functional models of peer aggression. Although there is a relative paucity of literature regarding the adjustment of socially aggressive adults, an examination of existing studies of children, adolescents, and college-age students offers preliminary insights into developmental trends in the adaptation of social aggressors over time. For example, it appears that for children and adolescents, socially aggressive behavior is positively associated with measures of social impact, perceived power, dominance, and perceived popularity, and there is evidence of these links beginning in the preschool period. Conversely, peer rejection seems to be negatively related to

social aggression in several studies of preschool- and school-age children, as well as in two studies of college-age students. Additional prospective studies are clearly warranted to more conclusively demonstrate whether this is indeed a developmental trend, and also to ascertain whether there are salient developmental effects related to friendship-level and individual-level adjustment.

In sum, although the major theories, methods, and constructs derived from the history of research on physical aggression have proven invaluable in developing our knowledge of socially aggressive behaviors, new models for defining and classifying social forms of aggression are clearly needed. From a definitional standpoint, both social and physical aggression involve behaviors that are experienced as hurtful by victims and may create social problems for the aggressor; however, there are important functional differences between these forms that may be obscured by relying exclusively on current methodologies. Moreover, inconsistencies in how functions are defined, a failure to fully elaborate the social and psychological functions of socially aggressive behavior, and a lack of understanding of the role of developmental stage in the function on specific behaviors have also compromised research on functional models of peer aggression.

Conclusion

Over the past 20 years, growing interest in the study of social forms of aggression has raised many questions about the developmental effects of aggressive behavior on psychological functioning, peer relationships, and social status. Studies to date have made considerable progress in clarifying important differences between social and overt forms of aggressive behavior; however, continued efforts to refine definitions of social aggression and examine how existing theories of human aggression might best inform conceptualizations of the construct are clearly warranted. Although the study of social aggression is complicated by the challenge of assessing behaviors that may be surreptitious and are necessarily embedded in a social context, knowledge of the functions and development of socially aggressive behavior will significantly advance our understanding of when the behaviors reflect prosocial, normative adaptation, and when the behaviors represent markers of maladaptation and adjustment difficulties.

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