Running head: RELATIONAL AGGRESSION AND PEER GROUPS

Peer Groups and Social Adjustment in Adolescence:
A Relational Approach to the Study of Relational Aggression

by

Kendra Delveaux

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy

Department of Psychology

Carleton University

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Abstract

Peer groups of early adolescents ($N = 425$) were examined to investigate similarity with respect to relational aggression (peer-reports) and centrality of relationally aggressive individuals within groups. Characteristics of highly aggressive groups and social adjustment of group members (loneliness, attachment, victimization) were assessed. Group members exhibited similarity with regards to relational aggression and the majority of relationally aggressive girls belonged to highly nuclear groups. Extremely relationally aggressive groups were comprised of only female members, and members of these groups, on average, reported better social adjustment than members of non-aggressive female groups (e.g., less loneliness and overt victimization, greater communication in attachment relationships with peers). Greater relational aggression displayed by group members was associated with less loneliness, even after controlling for the degree of aggression displayed by the individual. The utility of a multi-factor, multi-level model (Cairns & Cairns, 1991) for understanding the development and functions of relational aggression was discussed.

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Table of Contents

Aggression.....	2
Relational Aggression	4
Evidence For a Distinct Construct	7
Social-Psychological Adjustment	9
Gender Differences	12
Peer Relationships	15
Friendships	18
Peer Groups	21
The Distinction Between Friendships and Peer Groups.....	21
Measurement	22
Aggression in the Context of Adolescents' Peer Groups.....	24
Similarity and Status	24
Social Adjustment of Members of Aggressive Groups.....	29
Victimization.....	30
Attachment	33
Loneliness.....	37
Theoretical Framework	40
The Present Study.....	45
Similarity and Group Centrality with Respect to Aggression in Peer Groups.....	47
Extremely Aggressive Groups	48
Characteristics of Aggressive Groups	49
Social Adjustment of Peer Group Members	52
Individual and Relational Variables: Predicting Social Adjustment.....	54
Method	56
Participants	56
Procedure.....	57
Measures.....	58
Behavioral Nomination Measure	58
Friendship Nominations	59
Peer Groups	60
Social Experience Questionnaire	64
Loneliness Questionnaire	65
Inventory of Parent and Peer Attachment	66
Results	67
Identification of Aggressive Individuals	69
Adolescents' Peer Groups	70
Descriptive Information Regarding All Identified Groups	72
Aggressive Individuals and Centrality Related to Group Membership	74
Centrality of Extremely Aggressive Adolescents Within their Peer Groups	75
Overall Centrality of the Peer Group to which Extremely Aggressive Adolescents' Belonged.....	75
Group-Based Analyses.....	78
Similarity.....	79
Correlations Between Individual Scores and Peer Group Scores	79

Comparing Within Group to Between Group Variance.....	80
Extremely Aggressive Groups	80
Identification of Extremely Aggressive and Non-Aggressive Groups.....	80
Characteristics of Aggressive Groups	81
Social Adjustment of Peer Group Members	86
Individual and Relational Variables: Predicting Social Adjustment.....	90
Contributions of Individual versus Group Characteristics.....	94
Discussion	97
Characteristics of Aggressive Peer Groups	97
Relational Aggression: Adaptive or Maladaptive?	102
Social Adjustment: A Function of the Individual or Group Characteristics	109
Limitations	112
Cairns and Cairns (1991) Model of the Development of Aggression.....	116
Directions for Future Research within the Framework of the Model	117
Summary	121
Relational Aggression: Should we be Worried?	122
References	125

List of Tables

Table 1:	Levels of Analysis and Levels Unfolded (Cairns & Cairns, 1991).....	p. 42
Table 2:	Number of Males and Females Classified as Aggressive Versus Non-Aggressive.....	p. 71
Table 3:	Observed and (Expected Frequencies) for the Chi-Square Tests Comparing the Number of Aggressive Versus Non-Aggressive Males and Females Who Belonged to Nuclear and Non-Nuclear Groups.....	p. 77
Table 4:	Number of Male, Female, and Mixed Gender Groups Classified as Aggressive Versus Non-Aggressive.....	p. 82
Table 5:	Number of Extremely Aggressive Versus Non-Aggressive Males and Females who were Members of Aggressive and Non-Aggressive Groups.....	p. 84
Table 6:	Intercorrelations Between Aggression and Outcome Measures Based on Group Scores.....	p. 88
Table 7:	Means (SDs) for Adolescent Social Psychological Adjustment Variables by Group Aggression Status for Males and Females.....	p. 92
Table 8:	Intercorrelations Between Aggression and Outcome Measures Based on Individual Scores.....	p. 93
Table 9:	Results of Hierarchical Multiple Regression Analyses Predicting Loneliness, Victimization, and Attachment from Gender, Aggression of the Individual, and Aggression of the Group.....	p. 96

List of Appendices

Appendix A:	Parental Consent Letter.....	p. 136
Appendix B:	Oral Debriefing for Students.....	p. 138
Appendix C:	Debriefing Letter for Parents.....	p. 139
Appendix D:	Peer Nomination Measure.....	p. 141
Appendix E:	Friendship Nominations.....	p. 143
Appendix F:	Peer Groups.....	p. 144
Appendix G:	Determining Centrality in Social Clusters and Social Networks.....	p. 146
Appendix H:	Co-Occurrence Matrix (Example).....	p. 147
Appendix I:	Social Experience Questionnaire.....	p. 148
Appendix J:	Loneliness Questionnaire.....	p. 150
Appendix K:	Inventory of Parent and Peer Attachment (Peer Scale).....	p. 152
Appendix L1-L6:	Female Relationally Aggressive Groups.....	p. 154
Appendix M1-M19:	Female Non-Aggressive Groups.....	p. 160
Appendix N1-N9:	Male Overtly Aggressive Groups.....	p. 179
Appendix O1-O14:	Male Non-Aggressive Groups.....	p. 188

Peer Groups and Social Adjustment in Adolescence:

A Relational Approach to the Study of Relational Aggression

Although past research has focused mainly on overt (e.g., physical and verbal) forms of aggression, researchers have more recently begun to investigate the causes, consequences, and correlates of more relational or social forms of aggressive behavior. Relational aggression generally involves the manipulation of friendships and peer relationships, and includes behaviors that are intended to significantly damage children's friendships or feelings of inclusion by the peer group (Crick & Grotpeter, 1995). Results of research have indicated that relationally aggressive children, as well as their victims, experience numerous social adjustment problems such as peer rejection, depression, and loneliness (e.g., Crick, 1996; Crick & Bigbee, 1998; Crick & Grotpeter, 1995; 1996).

Researchers have also begun to investigate the friendship relationships of relationally aggressive children. For example, results have indicated that relationally aggressive children had mutual friendships (e.g., Grotpeter & Crick, 1996; Rys & Bear, 1997), but that the friends of relationally aggressive children were more likely to be relationally aggressive and relationally victimized than the friends of non-aggressive children (e.g., Werner & Geiger, 1999). In addition Grotpeter and Crick (1996) have reported that the friendships of relationally aggressive individuals were more intimate and exclusive than those of non-aggressive individuals.

The aim of the present study was to take a broader look at the relationships of relationally aggressive individuals. Due to the nature of relationally aggressive behaviors (e.g., manipulation of friendships and peer groups), the peer group seemed an important social context with respect to the development, maintenance, and expression of

relationally aggressive actions. Specifically, the fact that children spend a significant amount of time with peer group members, participate in common activities, as well as share an interpersonal connectedness with other members, makes the peer group a strong socializing force for children (Kindermann, 1993). This may be of particular cause for concern in the case on aggressive behavior, since peer groups are presumed to be formed based on common values, beliefs, and behaviors, and shared time and experiences are then assumed to result in increased similarity between group members (e.g., Cairns & Cairn, 1991).

Thus, the first goal of the present study was to take a closer look at the characteristics of highly relationally aggressive groups in adolescence, including similarity of group members with respect to relational aggression as well as the centrality of relationally aggressive groups and individuals within the network. It was also hypothesized that membership in a highly aggressive peer group might be detrimental to one's adjustment, given the degree of aggressive interactions to which group members might be exposed. Thus, a second goal was to investigate the social adjustment (loneliness, attachment to peers, victimization) of members of extremely aggressive groups. The goals and outcomes of the study were discussed within the context of a multifactor, multilevel model (Cairns & Cairns, 1991) describing how aggression might emerge and be maintained in different interactions and relationships over time.

Aggression

In the psychological literature, aggression has generally been referred to as behavior that is *intended* to harm or injure another organism (e.g., Berkowitz, 1993; Maccoby & Jacklin, 1974). In contrast, Buss (1961) suggested that the concept of intent

was both awkward and unnecessary, and defines aggression instead as “a response that delivers noxious stimuli to another organism” (p.1). Other researchers, however, suggested that the concept of intent is important in distinguishing between actual aggressive actions and accidental harm or injury to others. Thus, Baron (1977) proposed the following definition of aggressive behavior, “aggression is any form of behavior directed toward the goal of harming or injuring another living being who is motivated to avoid such treatment” (p. 7).

Although aggression has commonly been defined as involving intent to harm, this intent to injure another person may be the main goal in itself, or it may simply be the means to an end. Therefore, many researchers distinguish between hostile (angry) aggression (i.e., the primary goal is injury to the victim) and instrumental aggression (i.e., injury to the victim is secondary to the acquisition of some other goal; Baron, 1977; Buss, 1961; Geen, 1990). This dimension of aggressive behavior has also been referred to as reactive-proactive (Crick & Dodge, 1996; Dodge & Coie, 1987). Reactive (hostile) aggression refers to an angry, defensive reaction to perceived threat or provocation, where the purpose is to relieve the perceived threat. In contrast, proactive (instrumental) aggression refers to a deliberate behavior that is controlled by external reinforcements and is presumed to occur in the absence of immediate provocation or threat. The purpose of instrumental aggression is to obtain some specific positive outcome.

It appears, therefore, that aggressive behaviors can be differentiated in terms of their purpose and their reinforcing consequences. However, this definition of aggressive behavior is still very broad, and encompasses a large spectrum of behaviors. For example, teasing, gossiping, social exclusion, verbal insults, and physical attacks might all be

classified as behaviors that deliver noxious stimuli and are intended to harm or injure another organism. Consequently, some researchers have suggested that aggressive behaviors can also be differentiated in terms of the type of behavior that is employed in order to deliver the aggressive action. For example, Buss (1961) distinguished among physical and verbal types of aggression. Physical aggression was defined as an assault against an organism through the use of body parts or weapons, whereas verbal aggression was defined as a vocal response that delivered noxious stimuli to another organism. Buss also suggested that physical and verbal aggression might be direct (e.g., hitting someone) or indirect, in which case the aggressor may avoid counterattack since he or she is more difficult to identify (e.g., setting fire to a neighbor's house).

Thus, it appears that aggression can be distinguished in terms of several dimensions: 1) reactive (hostile) versus proactive (instrumental); 2) physical versus verbal; 3) direct versus indirect. More recently, researchers have begun to investigate an additional type of aggressive behavior that could be included in the second dimension, relational aggression.

Relational Aggression

A great deal of past research has focused on overt forms of aggression, such as physical and verbal aggression (see Hyde, 1984; Maccoby & Jacklin, 1974 for reviews). Physical aggression involves harm or the threat of harm through physical means, whereas verbal aggression refers to psychological abuse in the form of insults (Parke & Slaby, 1983). More recently, however, researchers have also begun to study more relational forms of aggressive behavior. To date, Crick and colleagues have conducted much of the original research in this area. Crick and Grotpeter (1995) suggest that *relational*

aggression generally involves “harming others through purposeful manipulation and damage of their peer relationships” (p. 711), and “includes behaviors that are intended to significantly damage another child’s friendships or feelings of inclusion by the peer group” (p. 711). Some examples might include: angrily retaliating against a child by excluding him or her from one’s play group or purposefully withdrawing friendship or acceptance in order to hurt or control a child.

Two other forms of aggression, that appear similar to relational aggression, have also recently been investigated. The first is *indirect aggression*, that Bjorkqvist, Lagerspetz, and Kaukiainen (1992) describe as “a type of behavior in which the perpetrator attempts to inflict pain in such a manner that he or she is more likely to avoid counteraggression and, if possible, to remain unidentified” (p. 118). These researchers suggest that indirect aggression generally involves some sort of social manipulation, such as using other individuals as a means of attack or manipulating the social structure in order to exclude an individual from the group. Some examples of this type of aggressive behavior might include “gossiping” or “becoming friendly with someone else as revenge”.

Although there has been some tendency, in the research literature, to use the terms relational and indirect aggression as though they are the same construct, they are not exactly one and the same. Although both seem to refer to some type of social manipulation, indirect aggression (Bjorkqvist et al., 1992; Lagerspetz, Bjorkqvist, & Peltonen, 1988) involves an indirect approach (i.e., an attempt to inflict pain in such a manner that it seems there has been no intention to hurt at all). However, the items included in Crick and Grotpeter’s (1995) measure seem to involve both an indirect (e.g.,

“when mad, gets even by keeping the person from being in their group of friends”) as well as a direct approach (e.g., “tells friends they will stop liking them unless they do what they say”). In fact, it may be that indirect aggression (Bjorkqvist et al., 1992; Lagerspetz et al., 1988) is a sub-type of relational aggression, specifically - indirect relational aggression, whereas relational aggression (Crick, 1995; 1996; Crick, Bigbee, & Howes, 1996; Crick, Casas, & Mosher, 1997; Crick & Grotpeter, 1995; McNeilly-Choque, Hart, Robinson, Nelson, Olsen, 1996) may take both forms (i.e., direct and indirect).

Finally, a third term has been introduced in the psychological literature. Underwood and colleagues as well as Cairns and colleagues refer to a form of *social aggression*, although they define this construct somewhat differently. According to Galen and Underwood (1997), social aggression is “directed toward damaging another’s self-esteem, social centrality, or both, and may take direct forms such as verbal rejection, negative facial expressions or body movements, or more indirect forms such as slanderous rumors or social exclusion,” (p.589). In addition to the peer manipulations described by Crick and colleagues, Galen and Underwood (1997) suggest that social aggression also includes disdainful facial expressions, social exclusion, and derisive remarks. According to Paquette and Underwood (1999), the definition of social aggression is based on the functions aggressive behaviors serve for the aggressor (e.g., damage to self-esteem, social centrality), rather than the mode through which these behaviors are expressed.

Other researchers have defined this same term somewhat differently, however. Specifically, Xie, Cairns, and Cairns (1999) define social aggression as “...actions

whereby interpersonal damage is achieved by nonconfrontational and largely concealed methods that employ the social community (e.g., social ostracism, rumors, gossip, character defamation).” As such, this definition seems more similar to “indirect aggression” as defined by Bjorkqvist et al. (1992) and Lagerspetz et al. (1988), which has been described in this paper as an indirect form of relational aggression, than the definition of social aggression provided by Underwood and colleagues (Galen & Underwood, 1997; Paquette & Underwood, 1999).

In summary, there seem to be several different terms (sometimes with different definitions!) for what seems to be a relational or social form of aggression. At the present time, relational aggression appears to be the most clearly defined concept, in terms of definition, measurement, and related research. Thus, the focus of the present study will be *relational aggression* as defined by Crick and Grotpeter’s (1995). However, since indirect and social aggression seem to be related, if not exactly synonymous constructs, some research related to these forms of aggression may be discussed when relevant. Furthermore, the age group of interest in the present study was adolescence; thus, the focus of the following review was focused on this age period. However, since few studies of relational aggression have been conducted with adolescents to date, related research with children (i.e., grades three to six) or older adolescents/young adults (i.e., undergraduate students) was also presented to provide further information regarding specific topics.

Evidence For a Distinct Construct

Results of recent research suggested that relationally aggressive behaviors could be reliably distinguished from overt (physical, verbal) aggression. Results from several

areas of research provide evidence that these two forms of aggression are separate, yet related, constructs. First, the results of numerous studies have indicated that items used to assess relational and overt aggression load on different factors. These studies have been conducted using various methods, including peer reports (e.g., Crick, 1996; Crick et al., 1997; Crick & Grotpeter, 1995; Delveaux, 1997; Grotpeter & Crick, 1996; McNeilly-Choque et al., 1996; Sinclair, 2000), self-reports (Mills, 1999), and teacher-reports (e.g., Crick, 1996; Crick et al., 1997; McNeilly-Choque et al., 1996). Furthermore, these constructs have been reliably distinguished across several different age groups, including preschoolers (e.g., Crick et al., 1997; McNeilly-Choque et al., 1996), children (e.g., Crick, 1996; Crick & Grotpeter, 1995; Grotpeter & Crick, 1996; Sinclair, 2000), and adults (e.g., Werner & Crick, 1999).

Overall, results seem to indicate that overt and relationally aggressive behaviors are related, yet distinct, constructs with correlations between the two forms of aggression ranging somewhat broadly, depending on method of assessment, age, and gender. For example, the correlation between observed overt and relationally aggressive behavior among preschool boys was reported as $r = .20$ (McNeilly-Choque et al., 1996), compared to an association of $r = .77$ based on peer-reports of a sample of third- through sixth-grade children (Crick, 1996). Overall, the correlation between overt and relational aggression tends to hover around $r = .50$ to $.60$. Crick and Grotpeter (1995) suggest that, “The moderate magnitude of this correlation is what one would expect for two constructs that are hypothesized to be *different* forms of the *same* general behavior (i.e., there should be a moderate association rather than a low or high association). Overall, these analyses provide initial evidence that relational aggression is a distinct construct, and that,

although related, it is relatively independent of overt aggression” (p. 715).

Evidence for the distinctiveness of relational aggression has also been obtained through an examination of children’s perceptions of aggressive behaviors. Crick, Bigbee, & Howes (1996) assessed third- through sixth-grade children’s normative beliefs about aggression. Normative beliefs were defined by these authors as children’s perceptions of how often aggressive behaviors actually occurred in their peer groups. Children, in this study, were asked a series of open-ended questions in order to assess “what most girls do when they are mad at (or want to be mean to) another boy or girl” and “what most boys do when they are mad at (or want to be mean to) another boy or girl”. Crick and colleagues reported that children in this study frequently and spontaneously cited relationally aggressive behaviors as involving anger and intent to harm, even though they had not been prompted to do so. These results suggest that relationally aggressive behaviors are viewed by children as being “aggressive”, and also that these relationally aggressive acts are salient to children.

In summary, results have indicated that overt and relational aggression appear to be two moderately associated, yet still distinct concepts. Thus, it may be important in future research to distinguish among these types of aggression, and examine them as distinct constructs rather than as one global measure of “aggressive behavior”. In fact, results of research have indicated that overt and relational aggression may provide unique information about children’s adjustment (see review to follow).

Social-Psychological Adjustment

Research regarding relational aggression among elementary school children has indicated an association between this form of aggression and numerous adjustment

indices. For example, relational aggression among children in grades three to six has been found to be associated with peer rejection (Crick & Grotpeter, 1995; Rys & Bear, 1997). However, Rys and Bear reported that overt aggression was more clearly linked to peer rejection for boys, whereas relational aggression was more strongly associated with peer rejection for girls. Furthermore, relationally aggressive children reported greater isolation from peers, more loneliness, and higher levels of depression than did non-relationally aggressive children (Crick & Grotpeter, 1995).

Some evidence has also been found for long-term effects of aggressive behavior on children's adjustment. Crick (1996) found relational aggression was predictive of future, as well as concurrent, social-psychological problems. Crick conducted assessments of social behavior and adjustment among third- through sixth-grade children at three times during the academic year. Both relational and overt aggression significantly predicted aspects of future social-psychological adjustment for boys and girls. However, relational aggression provided unique information about social adjustment for girls only. For example, relationally aggressive girls became more rejected by peers over the course of the school year.

Crick and Bigbee (1998) also reported a modest correlation between *overt aggression* and *overt victimization* ($r = .20$ for girls; $r = .19$ for boys). However, the association between *relational aggression* and *relational victimization* appeared to be somewhat larger ($r = .57$ for girls; $r = .62$ for boys) suggesting that engaging in relationally aggressive behaviors was associated with a similar form of victimization.

Relational aggression has been found to be associated with additional indices of adjustment among adolescents. Werner and Crick (1999) reported additional information

about relational aggression and adjustment in late adolescence. Relational aggression among undergraduate students was found to be associated with peer rejection, antisocial personality features, and borderline personality features among both men and women, as well as bulimic symptoms among women. In addition, Linder, Crick, and Collins (2002) investigated relational aggression in the context of the romantic relationships of university students (undergraduate and graduate). Results indicated that self-reported use of relational aggression towards one's romantic partner was associated with greater frustration, ambivalence, jealousy, and anxious clinging, as well as less trust, within the context of young adults' attachment in the context of romantic relationships. It was also interesting to note, however, that relational aggression employed in the context of romantic relationships was associated with higher levels of *communication with fathers* and greater levels of *alienation from mothers and peers*.

Overall, the results of studies to date indicate that relational aggression is associated with numerous social psychological adjustment difficulties, such as peer rejection, depression, attachment, and potentially borderline personality features and bulimic symptoms at various life stages. It is also possible that some of these associations may be stronger among women than men, or at the very least, may differ somewhat for men and women (e.g., bulimic symptoms among women). Thus, it is important to examine gender differences both in relation to differential adjustment indices related to physically and relationally aggressive behaviors for males and females as well as the frequency with which males and females engage in these types of aggressive behavior.

Gender Differences

In general, the results of many past studies indicated that males exhibited a higher level of aggression than females (see Maccoby & Jacklin, 1974 for a review). It appears, however, that the actual magnitude of these differences may not be that large (Hyde, 1984), and may vary according to various features of the study, such as type of aggression assessed, setting, method of assessment, and age of the subjects (Eagly & Steffen, 1986; Hyde, 1984). It is important to note that, in past years, a great deal of research has been conducted in the area of physical, and sometimes verbal aggression. Aggressive behaviors, in these studies, have often been defined as “hitting someone”, “willingness to deliver a shock”, or “threatening to harm someone”. Crick and Grotpeter (1995), however, suggest that the forms of aggression that have generally been assessed in the past are more salient for boys than for girls. Accordingly, gender differences in aggressive behavior (i.e., that males are more aggressive than females) may reflect “a lack of research on forms of aggression that are relevant to young females rather than an actual gender difference in levels of overall aggressiveness” (p. 710). Consistent with this hypothesis, a number of researchers have attempted to examine the incidence of relationally aggressive behaviors among boys’ and girls’ peer groups.

Results of studies examining gender differences in relational aggression among young school children have provided somewhat inconsistent results. Crick and Grotpeter (1995) conducted an initial study investigating the aggressive and prosocial behaviors of third- through sixth-grade children. Using a *peer nomination measure*, Crick and Grotpeter (1995) identified 371 nonaggressive, 41 overtly aggressive, 46 relationally aggressive, and 33 overtly plus relationally aggressive children. Approximately equal

numbers of males and females were classified as nonaggressive (73% and 78.3% respectively). However, the overtly aggressive group consisted mainly of boys (15.6% versus .4% of the girls), the relationally aggressive group consisted primarily of girls (17.4% versus 2% of the boys), and the combined group consisted of both boys and girls (9.4% and 3.8% respectively). To further assess the relation between gender and peer-perceptions of aggressive behavior, two analyses of variances were conducted on mean relation and overt aggression scores. Girls were found to be significantly more relationally aggressive than boys, and boys significantly more overtly aggressive than girls. However, results of children's *self-reports* of aggressive behavior in the same study indicated that boys reported greater use of both overt and relational aggression.

Other researchers have not always replicated Crick and Grotpeter's (1995) results, however. For example, Rys and Bear (1997) obtained both peer nominations and teacher ratings of aggression among third and sixth grade children. Results of both methods indicated that boys were more overtly aggressive than girls, but no significant gender differences were found in children's average relational aggression scores. However, extreme groups analysis (i.e., the number of children with a relational aggression score at least 1 *SD* above the mean), revealed that the relationally aggressive group consisted almost entirely of girls (i.e., 20 girls, 1 boy). On the other hand, the overt and overt plus relationally aggressive groups consisted mostly of boys (i.e., 15 boys, 3 girls; and 18 boys, 4 girls, respectively).

Although few studies have been conducted regarding relational aggression among young adolescents, several studies have been conducted on related topics (e.g., indirect, social aggression). For example, Lagerspetz et al. (1988) reported that 11 and 12 year-old

girls tended to employ more indirect means of aggressive behavior (e.g., starts being somebody else's friend), whereas boys used more direct means (e.g., kicks or hits). In addition, Galen and Underwood (1997) presented children with hypothetical vignettes describing physical and social aggression, and asked how often these forms of aggression occurred among their peer groups. Fourth and seventh grade girls reported similar levels of physical and social aggression, but tenth grade girls reported higher levels of social aggression among their peer groups than did boys. Moreover, Galen and Underwood reported that ratings of social aggression decreased with age for boys, but increased with age for girls. Cairns, Cairns, Neckerman, Ferguson, and Gariepy (1989) reported somewhat similar findings. Specifically, they indicated that themes of social alienation and ostracism were more common among conflicts reported by girls in grade seven than in grade four. However, these themes were rarely evident in self-reported conflicts of boys at either grade.

In summary, results consistently seem to indicate that boys are more overtly aggressive than girls. However, findings regarding relation aggression have been somewhat mixed, and differ depending on the age of the children and the method employed (e.g., peer, teacher, self-report). Results of most studies seem to indicate either that boys and girls are equally relationally aggressive or that girls are more relationally aggressive than boys. Results also seem to differ depending on whether average relational aggression scores are compared or extreme groups are identified. Specifically, whereas results based on mean aggression scores seem less clear, results of extreme groups analysis appear more consistent (i.e., more girls were generally identified as being extremely relationally aggressive). Thus, at the present time, it seems fair to make the

tentative conclusion that both boys and girls engage in relational aggression, although more girls are generally identified as being extremely relationally aggressive.

Cairns and Cairns (1991) theorize that social behavior patterns are determined by multiple factors. They suggest that to understand aggressive behavior one must simultaneously assess individual factors, interindividual interactions, social networks, internetwork relations, and cultural-ecological-economic conditions. Aggressive behaviors occur in dynamic developmental contexts that determine their meanings, functions, and outcomes. Thus, a primary goal of the present study was to assess relational aggression and social adjustment within the context of adolescents' peer relationships, particularly their peer groups. First, however, it is important to provide a brief overview of the different ways in which peer relationships have been defined and assessed in the literature.

Peer Relationships

Children's peer relationships have become a widely researched area in the psychological literature. One of the changes assumed to occur during adolescence is a shift in adolescents' orientations from parents towards peers (Coleman, 1980; Havinghurst, 1987; Hill, 1993). At this time, peers are assumed to play a pivotal role in adolescents' social and emotional development (e.g., Berndt, 1982; Buhrmester & Furman, 1987). In this respect, positive associations with peers may lead to better adjustment, whereas problematic peer relations, or affiliations with deviant peers, may be associated with poorer adjustment outcomes. Thus, the nature and quality of these relationships becomes very important.

There are several different ways in which researchers may define or assess these

relationships, the most common being the study of: 1) peer acceptance/sociometric centrality; 2) friendship; 3) peer groups/cliques; and 4) social crowds. Popularity, friendship, peer group membership, and social crowds can be differentiated based on the criteria that define group membership (Kindermann, 1996). For example, *peer acceptance or sociometric centrality* refers to the degree to which a child is liked or disliked by the peer group as a whole (Asher, Parker, & Walker, 1996), and children are classified based on similarities with respect to peer acceptance (e.g., popular, rejected, neglected). On the other hand, *friendships* are defined as durable, mutually dyadic, and affectionate bonds (e.g., Urberg, Degirmencioglu, Tolson, & Halliday-Scher, 1995), and *peer groups* consist of networks of children who spend time together and share activities (Kindermann, 1996). Finally, *social crowds* (e.g., “brains”, “jocks”) are defined based on children’s behavioral characteristics as perceived by their peers (Brown, Mounts, Lamborn, & Steinberg, 1993).

Despite moderate associations between these different aspects of relationships, these terms are not synonymous. For example, not all popular children have reciprocated friendships and many unpopular children still report reciprocal friendships (e.g., see Parker & Asher, 1993). Similarly, children’s peer groups are not comprised entirely of their friends, and not all of a child’s friends are contained within that child’s peer group (e.g., Cairns, Leung, Buchanan, Cairns, 1995). Thus, each of these types of relationships has the potential to provide different information, and relate differentially to various aspects of adolescents’ adjustment.

All these aspects of children’s relationships may be relevant to the study of aggressive behavior. For example, results of research have indicated that both physical

and relational aggression were associated with peer rejection (e.g., Crick & Grotpeter, 1995; Crick, 1996; Rys & Bear, 1997). In addition, some research has been conducted regarding the friendships of relationally aggressive children (e.g., Grotpeter & Crick, 1996; Rys & Bear, 1997; Werner & Geiger, 1999), and one recent study was located examining some of the characteristics of the peer groups of relationally and socially aggressive girls' (Xie, Swift, Cairns, and Cairns, 2002). The paucity of research regarding children's friendships and peer groups or cliques was somewhat surprising given the nature of relationally aggressive actions (i.e., relational aggression "includes behaviors that are intended to significantly damage another child's friendships or feelings of inclusion by the peer group;" Crick and Grotpeter, 1995, p. 711). More specifically, whereas close and caring relationships with one's peers might result in better adjustment, involvement with relationally aggressive peers might be detrimental to one's adjustment (i.e., manipulation of one's close relationships). Although both friendships and peer groups are likely to be relevant contexts for study of relational aggression (e.g., damage to friendships, exclusion from the group), the majority of research to date has been conducted regarding the friendships, rather than the peer groups of relationally aggressive children. Thus, the main objective of the present study was to provide additional information regarding the peer groups of relationally aggressive adolescents. However, given the paucity of research relevant to relationally aggressive adolescents, research related to children's friendships was reviewed briefly to provide some general information regarding the relationships of relationally aggressive children.

Friendships

Friendship may be defined as “the experience of having a close, mutual, dyadic relation”, (Bukowski & Hoza, 1989, p. 19). In contrast to peer acceptance, friendship is a dyadic relationship, and can be described as a bilateral construct; the judgments of both individuals are important in defining this relationship (Bukowski & Hoza, 1989; Bukowski, Hoza, & Boivin, 1993). Thus, reciprocity is an important aspect in determining friendship.

Although aggressive children may be more rejected than their non-aggressive peers, results of research have indicated that many of these aggressive children still have mutual friendships. For example, Cairns, Cairns, Neckerman, Gest, and Garipey (1988) examined the friendships of aggressive boys and girls in grades four and seven. These researchers reported that aggressive children did not differ from controls in terms of the likelihood of having a reciprocated friendship.

Similar results have been reported with respect to relationally aggressive children. Results of several studies indicated that relationally aggressive girls were just as likely as non-aggressive girls to have at least one reciprocated friendship (Grotmeter & Crick, 1996; Rys & Bear, 1997). In addition, Rys and Bear reported that *overtly* aggressive and combined *relationally and overtly* aggressive boys did not differ from nonaggressive peers with respect to the likelihood of having at least one mutual friend. However, Grotmeter and Crick (1996) reported that *relationally* aggressive boys were less likely than their non-relationally aggressive male peers to have at least one reciprocal friendship. Thus, it is possible that relationally aggressive behaviors may be particularly detrimental to the formation or maintenance of mutual friendships for boys.

Results of research also indicate that overtly aggressive children tend to affiliate with one another and form mutual friendships (e.g., Cairns et al., 1988). Less is known about the affiliation patterns of relationally aggressive children. However, Werner and Geiger (1999) reported that third grade aggressive girls appeared more likely to affiliate with other girls who shared the same aggressive style (e.g., relationally aggressive with relationally aggressive; physically aggressive with physically aggressive). On the other hand, aggressive boys tended to have aggressive friends in general (e.g., physically aggressive boys had both physically and relationally aggressive friends). Furthermore, Werner and Geiger (1999) found that relationally aggressive girls were more likely than non-aggressive children to have *relationally victimized* friends. In contrast, both physically aggressive and relationally aggressive boys were more likely than non-aggressive children to have *physically victimized* friends.

Some research has also recently been conducted regarding the quality of relationally aggressive children's friendships. For example, Grotper and Crick (1996) assessed the friendship qualities of aggressive children in grades three to six. Few differences were discovered between aggressive (relational or overt) and non-aggressive children with respect to the more positive aspects of friendship *quality* (e.g., validation and caring, companionship and recreation, help and guidance). However, relationally aggressive children did report higher levels of exclusivity and a higher level of intimacy (self-disclosure) on the part of their friends. In addition, the friends of relationally aggressive children reported greater exclusivity as well as more relational aggression directed towards them by their friends than non-aggressive children.

In summary, results of recent studies seemed to indicate that both overtly and

relationally aggressive children in grades three to six (except possibly relationally aggressive boys; Grotzinger & Crick, 1996), were just as likely as non-aggressive children to have mutual friendships. However, the results of these studies also suggest the need for some concern with the adjustment of those children who affiliate with relationally aggressive children. For example, friends of relationally aggressive children were found to be more relationally aggressive as well as more relationally victimized in general (Werner & Geiger, 1999). There was also some indication that they might be the victims of relationally aggressive actions directed towards them by their friends (e.g., Grotzinger & Crick, 1996). Interestingly, however, few differences were observed between relationally aggressive and non-aggressive children with respect to the more positive aspects of friendship quality (Grotzinger & Crick), suggesting that there may also be some positive aspects to the relationships of relationally aggressive children as well.

Based on these findings, the objective of the present study was to take a somewhat broader view of children's peer affiliations by examining children's social peer groups or cliques, as opposed to their best friendships. Thus, one might extend the results of research obtained regarding children's friendships, to hypothesize that children who spent a significant amount of time with relationally aggressive peers (i.e., as members of social groups) might also experience social adjustment difficulties (e.g., greater victimization, poorer quality relationships). Thus, the main focus of the present study was to assess relational aggression in the context of adolescents' peer groups. Before turning to a discussion of the relevant research regarding aggression and the peer group as a context for development, several issues should be discussed. First, the distinction between friendships and peer groups was clarified. Second, a description of the manner in

which peer groups may be assessed and measured was presented and research regarding gender differences in the size and structure of peer groups was reported.

Peer Groups

The Distinction Between Friendships and Peer Groups

Cairns, Xie, and Leung (1998) stated "...friendships constitute only part of the picture of peer relationships in childhood and adolescence. A broader view would include the pool of relationships from which friendships emerge and into which they submerge: namely, the social network in which children are embedded and the specific groups of which they are members." (p. 29). Kindermann (1996) defined peer groups as "the multiple and potentially overlapping networks of age-mates with whom the child spends time and shares activities" (p. 159). Children's reports regarding peer groups are assumed to be relatively accurate because group membership is defined using observable behavioral criteria (i.e., physical proximity and time spent together). Kindermann (1996) suggests that the study of children's peer groups (i.e., children who hang out together in a group) provides a unique perspective on their peer relationships. Specifically, he argues that peer groups present social information that is *different* from that gained through the study of other aspects of children's relationships (e.g., sociometric centrality, friendships).

There is no necessary overlap between groups defined as a function of different relational criteria (Kindermann, 1996). For example, although some may assume that children's peer groups are comprised of their friends, this is not necessarily the case. In fact, children may have friends outside the peer group, and conversely, not all of the children in the individual's peer group will necessarily be his or her friends. Cairns et al.,

(1995) assessed fourth and seventh grade children's friendships and peer groups at two points during the school year. They found that between 57% and 82% of children's friends were also members of their peer groups.

Similarly, McCollam, Kindermann, and Metzler (1995, see Kindermann, 1996) reported that 42% of friends (or 63% based on *reciprocal* nominations) were also members of sixth graders' peer groups. Conversely, approximately 41% of children's peer group members were also considered to be friends. This figure dropped to 26% when only reciprocal friendship nominations were considered.

In summary, therefore, there appears to be at least some degree of overlap in children's friendships and peer groups, but the two are not synonymous. These two relationship contexts differ, in that at least some of the children that comprise children's friendships will not be found in their peer groups and vice versa. Exact estimates of these differences may vary depending on the exact "definition of friendship" employed (e.g., limited versus unlimited nominations).

Measurement

Cairns, Neckerman, and Cairns (1989) suggest that adolescents are easily able to identify their own social groups, the peer groups of others, and those individuals who do not belong to any groups within their classrooms and schools (Cairns et al., 1988; Cairns, Perrin, & Cairns, 1985). The Social Cognitive Map procedure (SCM; see Cairns, Gariepy, Kindermann, & Leung, in press) has commonly been used to identify children's peer groups. The SCM procedure can be used to identify: (1) clusters of individuals and connections among persons, and (2) the centrality or peripherality of persons and clusters in the social network. Centrality is generally assessed according to the number of

nominations to peer groups that students receive. As such, centrality represents the degree to which each student is salient to other students in the class. An advantage of the SCM procedure is that it may be used to provide accurate information about peer clusters even if participation rates are somewhat lower than one would normally require for sociometric research (Cairns et al., in press).

Moreover, although children may belong to different peer groups at different times, Kindermann (1993) suggests that despite changes in peer group membership, the behavioral characteristics of the groups may remain the same. That is, despite member turnover, changing peer groups tended to reorganize in such a way that their group profiles were preserved. In a sense, therefore, children's peer groups may tend to remain "stable" in terms of their behavioral composition. Similarly, Cairns et al. (1998) stated, "the networks of relationships in which individuals become embedded are themselves correlated over settings and over time" (p. 272). In fact, Cairns and colleagues suggested that, despite changes in group members and contexts, continuity of influence could persist because adolescents tended to reshuffle into new groups that were similar to the old ones. One implication of this proposition is that deviant children who make changes in their peer groups are likely to make new affiliations with new deviant peers.

Gender Differences in Social Network Size and Structure

Cairns, Xie, and Leung (1998) present a review of the literature regarding social networks in childhood and adolescence. Cairns and colleagues report that the proportion of mixed-gender groups begins to increase in late childhood and early adolescence; however, the predominant group context appeared to be same-gender, at least until late adolescence. For example, Cairns et al., (1995) did not identify any mixed-gender groups

in fourth grade, but approximately 10% of groups were found to be mixed-gender among seventh-grade participants.

Overall, the results of Cairns and colleagues' (1998) review seemed to indicate that there was some evidence to suggest that boys' peer groups may be larger than girls' (also see Benenson, Apostoleris, & Parnass, 1998). Although the results tended to differ somewhat depending on the methods and criteria employed for group identification, results of most studies indicated either that boys groups were larger, or that there was no difference in the size of male and female groups. Girls were not found to have larger peer groups than males in any of the studies reviewed.

Aggression in the Context of Adolescents' Peer Groups

Similarity and Status

Cairns and Cairns (1991) suggest that social clusters or groups promote common values and behavioral similarities. Thus, similarity with respect to actions and behavior patterns of members is enhanced. The reinforcement of common attitudes and behaviors may be cause for particular concern in the case of aggressive behavior. Cairns, Neckerman, and Cairns (1989) suggest "an extension of influence across persons within the cluster leads to the establishment of generalized patterns of deviance, beyond the index behavior that may have been required for initial group entry," (p. 283). Thus, research regarding aggressive behavior in the context of children's peer groups has been a topic of increasing interest in recent years.

Cairns et al. (1988) investigated the social networks of overtly aggressive boys and girls in grades four and seven. They identified "social clusters" (or groups of children who hang around together) within class by asking children to nominate groups of

children who “hang around together”. Based on this information, distinct social groups were identified, and children were classified as nuclear, secondary, or peripheral members of a particular cluster, or isolated (i.e., not belonging to any groups).

Cairns and colleagues (1988) reported that aggressive and control participants did not differ in terms of type of cluster membership. Results indicated that 95% of highly aggressive children were members of a social cluster. Approximately 30% of aggressive participants were nuclear members of high-salient groups, 45% were secondary members, 20% were peripheral members, and approximately 5% were isolated. No differences were discovered in the size of aggressive and control children’s peer groups (i.e., the number of people in the clusters).

Comparison of teacher-rated aggressiveness for nuclear members of all groups indicated that nuclear members of groups were quite similar in terms of their aggressive behavior. This was true for boys and girls in seventh grade, but only boys in fourth grade. Thus, these results provided support for the notion that aggressive children tend to affiliate with one another, and also that this tendency may increase with age, at least for overtly aggressive girls. Thus, Cairns and colleagues (1988) suggest that, although aggressive adolescents may generally be regarded as more rejected within the larger peer group, they may also be accepted by and closely linked to particular subgroups of peers.

Xie, Cairns, and Cairns (1999) conducted a similar study. A total of 175 peer social groups were identified based on a sample of 506 children in grades four to seven. Most of the groups were found to consist of students of the same gender, from the same class, and boys and girls did not differ in terms of group size. Girls in grades six and seven (but not four and five) and boys at all grade levels were found to be fairly similar to

their group members in terms of aggressive behavior. For boys, there was no relation between degree of aggressiveness and likelihood of being a member of a social network and aggressive boys were more likely than non-aggressive boys to be central members of their peer groups. However, a greater proportion of non-aggressive girls, than highly overtly aggressive girls belonged to a peer group and centrality was associated with popularity, but not overt aggression, for girls.

Finally, Bagwell, Coie, Terry, and Lochman (2000) employed a factor-analytic technique to identify social groups and determine group centrality based on fourth grade children's self-nominations to specific peer groups. Bagwell and colleagues' findings were consistent with those obtained in previous studies (e.g., Cairns et al., 1988; Xie et al., 1999). Specifically, aggressive and non-aggressive participants did not differ in terms of relative centrality of their specific peer group.

Although the studies reviewed above have all been conducted with respect to overt aggression, the results of a more recent study have also indicated that relationally aggressive children were at least as central their non-aggressive peers within the network. For example, Xie, Swift, Cairns, and Cairns (2002) assessed the association between network centrality and physical, verbal, social (operationalized as non-confrontational aggressive strategies), and direct relational aggression (operationalized as confrontational relationally aggressive strategies). No significant differences were observed between high, medium, and low centrality individuals with respect to the degree to which they engaged in physical, verbal, or direct relational actions. However, social aggression was associated with higher network centrality.

Overall, results of these studies seemed to indicate that: overtly aggressive children tended to affiliate with one another through membership in small groups or cliques, and that overtly aggressive children appeared just as likely as non-aggressive children to maintain relatively high centrality within the social network. Finally, results of the most recent study (Xie et al., 2002) also indicated that social or relationally aggressive adolescents were also likely to hold relatively prominent positions within the social network, either equal to or greater than that of non-aggressive individuals.

Similarity with respect to aggression in the context of adolescents' peer groups has raised concern among researchers. Cairns and Cairns (1991) stated, "Personal dispositions qualify individuals for entry into social groups, and one of the qualifying criteria for children and adolescents appears to be similarity with respect to aggressive, acting out behaviors. Once a person enters a group, reciprocal processes lead to further commonalties in activities, including deviant ones. There is a transmission of values and for some networks, a contagion of social problems. The entire group may become at risk. To the extent that social networks are themselves correlated with each other, persons become increasingly constrained in choices, values, and behaviors from childhood through adolescence" (p. 273). Thus, some children may encounter problems because of their social affiliations, not because of disaffiliation (Cairns & Cairns, 1991). In fact, results of research indicated that associations with deviant peers were predictive of later adjustment difficulties, such as dropping out of school, delinquency, and antisocial activities (see Coie & Dodge for a review).

The peer group would seem to be an important context for the study of relational aggression given the nature of these actions (e.g., manipulation of friendships and peer

groups, threats of exclusion from the group, etc.). In fact, Cairns, Neckerman, and Cairns (1989) suggest that, “female clusters in adolescence can serve as ‘attack groups’ as well as ‘support groups.’ To the extent that girls in early adolescence tend to employ indirect techniques of aggressive expression – including social exclusion, character defamation, and ostracism – as opposed to direct confrontational techniques, social groups have an added dimension” (p. 296). Thus, the purpose of the present study was to examine relational aggression in the context of children’s small peer groups or cliques. Specifically, similarity of relational aggression and centrality of relationally aggressive adolescents’ within these groups was one area of interest.

A second goal of this study was to examine the social adjustment of members of highly relationally aggressive peer groups. Kindermann (1996) suggests, “the *psychological characteristics* of a child’s peer group members constitute an important social context for his or her development. Thus, it is necessary to identify the aspects of the peer group(s) that are hypothesized to influence (or be influenced by) the developing child. These factors can include peer behaviors, competencies, values, or beliefs. In general, groups can be described as a joint function of the characteristics of their members and it is these characteristics, expressed in interactions, which are likely to influence the individual development of members” (p. 163). Thus, with respect to aggression, the degree to which peer groups members engage in aggressive behaviors may constitute an important context for peer group members, and one that may impact upon their social development.

Social Adjustment of Members of Aggressive Groups

An additional goal of the present study was to examine the social adjustment of adolescents who were members of highly relationally aggressive peer groups. In order to select outcomes likely to be associated with relational aggression in this context, it was first deemed necessary to investigate those outcomes that had been reported to be associated with relational aggression in previous research. As noted previously in this paper, these included: peer rejection (e.g., Crick & Grotpeter, 1995, Rys & Bear, 1997), loneliness and depression (e.g., Crick & Grotpeter, 1995), victimization (Crick & Bigbee, 1998) antisocial personality features, borderline personality features, and bulimic symptoms (Werner & Crick, 1999), and attachment to peers, parents, and romantic partners (Linder et al., 2002). Of these indices of adjustment, some seemed more relevant to the period of early adolescence than others (e.g., peer rejection, loneliness, depression, victimization, bulimic symptoms, and attachment to peers). Given that the focus of this study was on relationships, the goal was to select adjustment indices most likely to be directly related to relational contexts. Bulimic symptoms and depression were deemed to be less directly tied to relational contexts, and indeed could also be deemed to have more clinical implications (and one could also argue that depression could have some biological basis).

Thus, the four remaining indices included peer rejection, loneliness, attachment to peers, and victimization. Each of these indices of adjustment seemed particularly relevant given the relational focus of the present study. For example, the concept of loneliness reflects feelings of loss in reaction to threats to social relationships (e.g., Rotenberg, 1999) and representations of attachment to peers reflect feelings of trust and security in

the context of close relationships (e.g., Armsden & Greenberg, 1987). Given the nature of relationally aggressive actions, it seems likely that threats to security and social bonds, as well as acts of relational victimization, might be quite prevalent in a highly relationally aggressive peer group. Peer rejection was relevant to the present study in the sense that it did reflect a factor (i.e., a measure of one's status among one's peers) associated with relational aggression relevant to a relational context. However, given that the focus of the present study was on adolescents' *peer groups*, it seemed that assessment of one's status among one's peers would be better assessed by determining centrality within the peer network (e.g., see discussion from previous section regarding use of the SCM method, Cairns et al., in press). At this point, then, a discussion is presented regarding the potential associations relational aggression and the three remaining outcomes selected for examination in the present study: victimization (overt, relational), security of attachment to peers, and loneliness.

Victimization

Several studies have been conducted regarding the victims of overt and relationally aggressive behaviors. Crick and Grotpeter (1996) assessed self-reported overt and relational victimization among third through sixth grade children. These researchers reported a moderate correlation between overt and relational victimization ($r = .57$). However, identification of extreme groups of victimized children (i.e., scores 1 SD above the mean on overt and relational aggression) indicated that the majority of children in their sample experienced only one form of victimization. Specifically, 64% of those victimized were identified as experiencing a high degree of relational *or* physical victimization, but not both. These results indicated that although there was some

association between relational and overt victimization, the majority of extremely victimized children experienced mainly one form.

Results of several studies have indicated that overt and relational victimization were associated with various adjustment difficulties, such as peer rejection, depression, loneliness, social anxiety, and social avoidance, and emotional distress among elementary school children (e.g., Crick & Bigbee, 1998; Crick & Grotpeter, 1996). Furthermore, relational, but not overt victimization, was found to provide unique information regarding several aspects of children's adjustment (i.e., loneliness, social anxiety, social avoidance; Crick & Grotpeter, 1996). In general, boys were found to be more overtly victimized than girls (Crick & Bigbee; Crick & Grotpeter). However, girls were found to be just as relationally victimized as boys (Crick & Grotpeter), or even more likely than boys to be relationally victimized (Crick & Bigbee).

Paquette and Underwood (1999) reported that social victimization (defined somewhat similarly to relational aggression) was associated with adolescent's self-perceptions. For boys, both overt and social victimization were related to perceptions of their close friendships. For girls, social victimization was related to more dimensions of their self-concept (athletic competence, physical appearance, romantic appeal, behavioral conduct, close friendships and global self-worth) than overt aggression (close friendships, physical appearance, behavioral conduct).

Similar to the findings of Crick and Grotpeter (1996), Paquette and Underwood (1999) did not find gender differences in self-reported frequency of social victimization. However, results based on individual interviews indicated that girls had better recall of social victimization incidents, prompting the researchers to suggest that girls were more

concerned about social victimization than boys, perhaps because this form of aggression interfered with the social goals they valued most (Crick & Grotpeter, 1995).

Aggression and Victimization. Although there has been some assessment of the social adjustment of relationally victimized children, there has been less investigation of the association between relational aggression and victimization. However, Crick and Bigbee (1998) reported a moderate to high degree of association between relational aggression and relational victimization ($r = .57$ for girls and $r = .62$ for boys), but somewhat more modest correlations were observed between overt aggression and overt victimization ($r = .20$ for girls and $r = .19$ for boys).

Thus, it seems likely that children who engage in aggressive actions might also be victimized themselves, perhaps in retaliation for their behaviors. This may be even more likely in the case of relational aggression, given the results reported by Crick and Bigbee (1998) regarding the relatively stronger association between relational aggression and victimization as opposed to overt aggression and victimization. In fact, use of relational aggression within the peer group might result in a cycle of aggression and victimization. For example, threats to terminate friendships and exclude members from the group might result in retaliatory threats from victimized children at a later time. These behaviors might continue indefinitely, directed at, and by, different members of the peer group at different times depending on the relative power of the individuals and the particular alliances formed within the peer group at the time. Thus, membership in a highly relationally aggressive peer group might be associated with greater victimization for these group members. Thus, the degree to which members of highly aggressive groups

experienced both overt and relational forms of victimization were investigated in the present study.

Attachment

Attachment may be defined as an enduring affectional tie between the infant and an attachment figure (Bowlby, 1982). According to Bowlby, the attachment behavioral system has evolved because it contributes to the infant's survival by promoting proximity to his or her caregiver(s). By maintaining proximity to adult caregivers, the risk of possible harm due to cold, hunger, drowning, and predators, is reduced. In accordance with evolutionary theory, therefore, infants are *intrinsically* motivated to become attached to one or more caregivers.

Bowlby (1973) suggested that, over time, children build up expectations regarding the availability and responsiveness of attachment figures. These expectations were presumed to be a result of direct experience, and were hypothesized to persist relatively unchanged throughout the individual's life. In fact, these experiences and expectations were presumed to form the basis for the construction of "working models" of the self and other in attachment relationships. Based on these working models, the child should be able to predict how the attachment figure will respond at times when support is needed.

Until fairly recently, research and theory has focused mainly on the development of and factors influencing attachment in infancy. Bowlby (1980) has suggested, however, that attachment bonds may develop, not only between infants and caregivers, but also between two adults. Berman and Sperling (1994) define adult attachment as "the stable tendency of an individual to make substantial efforts to seek and maintain proximity to and contact with one or a few specific individuals, who provide the subjective potential

for physical and/or psychological safety and security,” (p. 8). Thus, researchers have begun to examine attachment within several different domains in adolescence and adulthood, including attachment to parents, peers, and romantic partners.

Collins and Read (1994) suggested that mental representations of attachment might become increasingly complex as individuals develop opportunities to interact with and form relationships with other individuals (e.g., peers, romantic partners). Thus, these researchers suggested that adults may possess several internal working models of attachment based on relationships with significant others that were best conceptualized as a network of interconnected models. Thus, individuals may have a more generalized model that apply to a wide range of relationships (parents, peers, romantic partners), although this model may not describe any one relationship very well. More specific models were also hypothesized to develop based on specific relationships (i.e., relationship with a specific friend “Jane”), or on specific types of relationships (i.e., a model that includes expectations about the self and others in parent-child relationships, a separate model containing information about peer relationships).

Results of past research have indicated that representations of different attachment relationships may provide some similar information regarding adjustment, but also that representations of diverse relationships might also provide unique information depending on the particular adjustment indices. For example, there is some evidence to suggest that attachment to parents and peers may contribute to different facets of adolescent self-esteem. Specifically, parental attachment appeared to be a stronger predictor of global self-esteem or self-worth (e.g., Armsden & Greenberg, 1987; Paterson, Pryor, & Field, 1995). However, Paterson and colleagues also provided some evidence to suggest that

perceptions of social competence may be more strongly associated with attachment to peers than parents. Thus, there is some evidence to suggest that attachment in different domains (or relationships) might be associated with different aspects of adjustment.

Attachment and Aggression. Results of studies among infants and young children have indicated that insecure patterns of attachment to parents in infancy were associated with aggressive behaviors among school-aged children (see Lyons-Ruth, 1996, for a review). Research related to attachment representations in adolescence and adulthood has been less extensive. However, results of a recent study (Laible, Carlo, & Raffaelli, 2000) have provided some evidence for the influence of peer, rather than parental attachment, with respect to overt forms of aggression. These researchers reported that overt aggression was negatively correlated with both parental and peer attachment among a sample of young adolescents. Results also indicated that adolescents who reported high parent and high peer attachment reported less aggressive behavior and depression, and greater sympathy, than those low on both forms of attachment. However, Laible and colleagues also reported that adolescents with secure attachment to parents, but not to peers, had slightly higher scores on aggression and depression, and slightly lower scores on sympathy, than those who reported secure attachment to peers, but not to parents.

Overall, Laible and colleagues (2000) suggested that peers might be relatively more influential with respect to adolescent's adjustment, at least in the context of the adjustment indices investigated in their study. Support for this assertion was evidenced in the fact that adolescents who had secure relationships with peers, but not parents, reported better adjustment (with respect to aggression, depression, sympathy) than those with secure relationships with parents, but less secure relationships with peers.

In a recent study, Linder, Crick, and Collins (2002) investigated relational aggression in the context of the romantic relationships of university students (undergraduate and graduate). Results indicated that self-reported use of relational aggression towards one's romantic partner was associated with greater frustration, ambivalence, jealousy, and anxious clinging, as well as less trust, within the context of young adults' romantic relationships. It was also interesting to note, however, that relational aggression employed in the context of romantic relationships was associated with greater levels of *alienation from mothers and peers*. Linder and colleagues' study was conducted with young adults and associations were assessed between attachment and relational aggression in the context of romantic relationships, and therefore the results are not directly applicable to the present study. However, they do indicate initial evidence for an association between poor representations of attachment and relational aggression, at least with respect to one developmental period (late adolescence/early adulthood).

Given the frequent use of relationally aggressive strategies (e.g., threats to terminate friendships or exclude individuals from the group, the manipulation of friendships and close ties within the group) might result in less security and trust with respect to relationships with one's peers. This might be true even if adolescents are not themselves the victims of these acts. For example, threats and manipulation of other relationships might cause some individuals, depending on their position and centrality within the group, to worry that they might be the next target.

Alternatively, relationally aggressive actions might arise as a result of insecure representations of attachment to peers. It is possible that insecure individuals might attempt to manipulate the relationships of others as an attempt to promote closeness and

exclusivity in their own relationships (e.g., trying to break up a friendship or exclude someone from the group in order to gain or maintain relationships with other friends or group members). Thus, an additional goal of this study will be to examine representations of attachment to peers (i.e., the degree of security they report with respect to peer relationships) as a function of membership in highly aggressive (overtly or relationally) versus non-aggressive peer groups.

Loneliness

Loneliness may be described as “the cognitive and affective reaction to the threat to social bonds,” (Rotenberg, 1999, p. 3), and loneliness is generally regarded as being comprised of two components. The first is a cognitive component that reflects the discrepancy between *desired* and *actual* social relationships. The second component is affective, and refers to the negative emotional experiences of disorientation, lostness, and loneliness (Peplau & Perlman, 1982; Rotenberg, 1999).

Parkhurst and Hopmeyer (1999) suggest a developmental progression in children’s conceptions or feelings of loneliness. Whereas young children may experience loneliness as a result of physical isolation and lack of physical contact, with increasing age, loneliness may be a result of more abstract conceptions of feeling cut-off, distanced, and alone. Thus, the causes of loneliness may be different at various stages of development. For example, in late childhood and adolescence, valued functions of one’s peer relationships may include factors such as: having confidants, possessing a sense of belonging, a sense of standing, and identity based on association with the peer group. Therefore, actions such as breaches of confidence, betraying a friendship, having no one to confide in, lacking a group to identify with, feeling that one is not valued or important,

may be more likely to be contributing factors to loneliness during adolescence (Parkhurst & Hopmeyer).

Results of research have revealed associations between loneliness and several aspects of children's peer relationships, including peer acceptance or rejection and friendship. Specifically, low acceptance has generally been related to higher loneliness (e.g., Asher, Hymel, & Renshaw, 1984; Asher & Wheeler, 1985; Parker & Asher, 1993; Parkhurst & Asher, 1992; Parker & Seal, 1996). Results of research also indicate that having at least one friend (as opposed to not having any friends) is associated with less loneliness (e.g., Parker & Asher, 1993; Parker & Seal, 1996), even when peer acceptance levels are controlled (Parker & Asher). Although little research has been conducted regarding the association between the number of friends or the density of children's friendship networks, results of one study indicated little relationship between these variables and children's loneliness. Specifically, Parker and Seal (1996) reported that number of friends was not related to loneliness among children after removing children who were friendless from the analysis. Similarly, few significant correlations were observed between network density (i.e., dense networks are those in which most individuals are friends with one another) and loneliness (Parker & Seal).

There is also some indication that loneliness may be related not only to having friends, but also to the quality of children's friendships. Parker and Asher (1993) reported that positive aspects of one's friendships (e.g., validation and caring, companionship and recreation, help and guidance, intimate exchange, and conflict resolution) were associated with less loneliness. On the other hand, conflict and betrayal in children's friendships was

associated with greater loneliness, even after controlling for children's level of peer acceptance.

Loneliness and Aggression. Hayden et al. (1988; see Hymel, Tarulli, Thomson, Terrell-Deutsch, 1999) collected some interesting personal narratives from young children regarding their perceptions regarding loneliness. Children's own personal experiences and conceptualizations of loneliness were obtained through the use of open-ended interviews conducted with 8- to 13-year olds. A content analysis of children's responses revealed three distinctive features of children's perceptions of loneliness: an affective dimension, a cognitive dimension, and a set of interpersonal situations or contexts giving rise to loneliness. Of particular interest for the present study was the third dimension. Specifically, both physical separation (e.g., loss, temporary absence) and psychological distancing (e.g., conflict, broken loyalties) were interpersonal contexts related to feelings of loneliness.

Hymel et al. (1999) described several examples of psychological distancing that seem particularly relevant to the study of relationally aggressive behaviors. Specifically, when children were asked what kind of things made them feel lonely, they provided some of the following examples: "If you were disagreeing with your friend and have a fight and all the other friends go on her side"; "I have no friends...they are all ganging up"; and "Last year, two of my friends, we'd pair off and leave the other out". It is interesting to note that many of the examples presented by children as a cause of loneliness seem to make reference to relationally aggressive forms of behavior.

In addition, results of research indicated that relational aggression was associated with loneliness among elementary school girls, even after controlling for overt aggression

(e.g., Crick & Grotpeter, 1995). There is also some evidence of a link between overt aggression and loneliness (Boivin, Poulin, & Vitaro, 1994; Cassidy & Asher, 1992). However, Boivin and colleagues found that aggressive-withdrawn-rejected children, but not aggressive-rejected children were lonelier than average centrality peers. Thus, loneliness may be linked more with withdrawn behavior than overt aggression.

In summary, Williams, Ladd, and Asher (1996) suggest that children's feelings of loneliness are influenced by the absence of positive relationship provisions as well as by negative interactions such as victimization by peers. Thus, it seems that aggressive actions in the context of children's social groups might be associated with feelings of loneliness among members of highly aggressive groups. For example, members of highly aggressive groups likely engage frequent aggressive actions and might possibly be more victimized as well, potentially also leading to an increase in adolescents' feelings of loneliness.

Theoretical Framework

Throughout this discussion, several themes have been evident, including the fact that both individuals and relationships may be important in the development and maintenance of aggression, as well as the subsequent social adjustment of these individuals. A second theme was related to the fact that there are many different aspects, facets, or levels of relationships (e.g., friends, groups) each of which may be more or less relevant for children's social adjustment, depending on the specific aspect of adjustment and the particular life stage. A developmental model of aggression has been proposed by Cairns and Cairns (1991) that appears to incorporate many of these factors, describing

how aggression might emerge and be maintained in different interactions and relationships over time.

Cairns and Cairns (1991) have proposed a multifactor, multilevel model for the understanding of aggression that includes simultaneous assessment of factors at each of 5 levels: the individual, interindividual interactions, social networks, internetwork relations, and cultural-ecological conditions (see Table 1). The following description represents a condensed version of some of the relevant issues at each of these levels, as discussed by Cairns and Cairns.

The first level refers to the *individual* and relations between individual subsystems (e.g., temperament, behavioral organization, cognitive organization). For example, one might examine social and cognitive processes associated with the use of aggressive behavior. Thus, each subsystem needs to be considered both in terms of its own influence, as well as its relation to other subsystems within the individual with respect to the stimulation or inhibition of aggressive actions.

The second level of analysis involves the role of *interindividual* interactions. At this level one might investigate the dyadic interchanges between two children or among a parent and a child to assess, for example, reciprocity in aggressive interchanges (e.g., aggression begets aggression) or factors that influence escalation/de-escalation of aggression during the course of an exchange.

Table 1

Levels of Analysis and Levels Unfolded (Cairns & Cairns, 1991)

Levels of Analysis	Levels of Analysis Unfolded
Individual	Neurobiological Morphological Temperament Behavioral organization Cognitive organization Social Role
Interindividual	Intraindividual organization and constraint Interindividual similarities and accommodation
Network	Homophily: "Birds of a feather" Intracluster reciprocity Developmental dynamics within clusters Social status and rejection
Inter-Network	Linkages between familial and peer system: conflicts and commonalities Changes in peer network affiliations over time Changes in familial network
Cultural-Ecological	Economic and societal constraints upon families and individuals Contributions to behavior (e.g., gender role, aggression) and status (e.g., drop-out career)

Dyadic relationships can be further subsumed within the context of larger *social networks* such as families or peer groups. In general, beliefs and values are correlated among group members with regard to any number of factors, including aggression, which could promote and support continued use of aggressive behavior among members. Thus, either social support or social rejection (i.e., exclusion from a group) could be associated with aggression, but perhaps for different reasons.

The fourth level of the model involves *internetwork relations* related to the similarities or differences between goals and values of the family and the peer group, or between a child's old peer group and a new one. For example, children of coercive families might associate also with coercive peer groups.

Finally, the *cultural-ecological-economic* context has the potential to influence the individual either directly or indirectly. For example, economic factors may determine whether a student may have to drop out of school and work, or these same economic factors might indirectly influence family relationship because the mother has to return to work (e.g., quality of the relationship, parental monitoring). At an even wider level, individuals and networks are embedded in the larger society as a whole, and as such are subject to and perhaps a product of larger societal beliefs, values, and norms.

Although not depicted in Table 1, Cairns and Cairns also suggest that an additional important dimension of the model is time. Thus, one should consider the developmental course of aggression, with respect to the degree of aggression observed and the associated outcomes at different time periods.

Cairns and Cairns also describe two assumptions associated with the developmental model. The first assumption is related to the *holistic* principle. According to this principle, the different levels are coordinated and synchronized. Thus, several levels should act together to support organized, adaptive behaviors. The second assumption is the principle of *developmental_constraint*, which refers to the process by which development is directed and channeled. It is assumed that directions for future development are in fact determined during the course of earlier development. Thus, once a system is consolidated, it provides constraints on the individual and the manner in which growth and change can occur in other systems or at other levels. Based on earlier developmental outcomes, the “degrees of freedom” in other aspects or systems are limited. Thus, the resultant effect is to align or coordinate separate systems.

Cairns and Cairns suggest that, although the model may seem complex (particularly with respect to assessment), these two principles (holism, developmental constraint) should function to create similarity and coordination across levels with respect to meanings, functions, and outcomes. Thus, one might expect development at each level to be somewhat synchronized and correlated, and not typically in competition. Although not clearly described as such by Cairns and Cairns, these factors would tend to suggest that the influence of each level might be somewhat additive.

Thus, Cairns and Cairns presented a fairly comprehensive model describing how aggression might emerge and be maintained in different interactions and relationships over time. Unfortunately, an assessment of various subsystems at all levels of the model was not possible within the framework of the present study. However, this model will be used as a framework within which to focus the goals of the present study, as well as to

discuss the findings and potential directions for future research consistent with propositions generated by the model.

The Present Study

Relational aggression has been defined as a form of aggression in which the focus is on damage to and manipulation of relationships (Crick & Grotpeter, 1995). In particular, Crick and Grotpeter have made specific reference to manipulation of both friendships and peer groups in their definition of relational aggression. Given the “relational” component of relational aggression, it is surprising how little attention has been focused on relational aggression in the context of relationships. Although a few studies have been conducted regarding the friendships of relationally aggressive children (e.g., Grotpeter & Crick, 1996; Mills, 1999; Werner & Gieger, 1999), very few studies have been published to date, regarding relational aggression in the context of small peer groups or cliques (see Xie et al., 2002 for an exception).

There are several reasons why the study of relational aggression in children’s peer groups is important. First, research conducted regarding *overt aggression* and peer groups has lead researchers to express concern that association with aggressive or deviant peers may lead to reinforcement of aggressive behavior, and sustained use of aggressive acts. One might possibly extent this line of thinking to hypothesize that extensive associations with *relationally aggressive children* or membership in *relationally aggressive peer groups* may lead to the reinforcement and maintenance of relationally aggressive behaviors for members of highly aggressive peer groups.

Thus, it seems relevant to study relational aggression in the context of peer groups or cliques. For example, it might be important to examine similarity with respect to

relationally aggressive behaviors (e.g., Are group members similar with respect to the degree of relationally aggressive actions in which they engage?). In addition, membership in highly relationally aggressive peer groups or association with relationally aggressive peers might be detrimental to one's social adjustment. For example, it is possible that individuals who belonged to relationally aggressive groups might be at increased risk for victimization or other social psychological difficulties (e.g., loneliness, insecure attachments to peers). Finally, from a developmental perspective, one of the most interesting periods to investigate the dynamics and functions of peer groups might be early adolescence. With proposed shifts in influence from parents to peers (Coleman, 1980; Havinghurst, 1987; Hill, 1993) as well as the general movement from more dyadic interactions to the context of the larger social group, the peer group would seem to be a particularly relevant social context for individuals at this developmental stage.

Thus, the overarching aim of this study was to examine relational aggression in the context of early adolescent peer groups, with respect to both characteristics of these groups and the social adjustment of group members. Thus, the main focus of the present study was at the "Network" level of analysis as described in Cairns and Cairns' (1991) model. Since relational aggression was the main variable of interest in the present study, most of the objectives and hypotheses were discussed as they pertained to relational aggression. However, overt aggression was also examined in several of the analyses, to be used mostly as a comparison group, or to determine whether relational aggression made additional contributions to adjustment beyond that which could be accounted for by relational aggression. Thus, overt aggression was discussed to a certain extent in the

forthcoming sections. The major objectives and hypotheses related to this study are discussed in more detail below.

Similarity and Group Centrality with Respect to Aggression in Peer Groups

Two of the subsystems related to the Network Level of analysis (as described by Cairns & Cairns, 1991), homophily (similarity) and social status appear to have been the most widely studied at this level, particularly with respect to overt aggression, and thus were selected for further investigation in the context of relationally aggressive groups. Therefore, a general examination of all groups was undertaken to determine whether peer group members tended to be similar with respect to relationally aggressive behaviors, and also to determine whether extremely relationally aggressive adolescents maintained high *centrality* within these groups. There was some evidence to suggest that similarity existed between group members with respect to overtly aggressive behaviors, and also that *overtly* aggressive individuals were just as likely, if not more so, than non-aggressive individuals to maintain high centrality within the social network (Cairns et al., 1988; Xie et al., 1999). Thus, it was expected that these findings would be replicated in the present study.

There has also been some recent evidence to suggest that social aggression was associated with higher network centrality, although direct relational aggression was not associated with level of network centrality (Xie et al., 2002). This would be consistent with the assumption that individuals who employ relationally aggressive strategies must have at least a moderate degree of centrality among their peers in order for their strategies to be effective. Thus, similar to overtly aggressive adolescents, it was expected that

extremely relationally aggressive adolescents would be at least as likely, or even more likely than their non-aggressive peers, to be nuclear members of their peer groups.

Similarity of relationally aggressive behaviors within adolescents' peer groups was also assessed. Although no research was available regarding this topic at the present time, results of previous research have suggested that peer group members tended to be similar with respect to a number of characteristics (e.g., overt aggression, motivation, academic achievement, popularity, etc.; see Cairns et al., in press, for a review). Thus, it seemed reasonable to assume that peer group members might show at least a moderate degree of similarity with respect to relationally aggressive behaviors as well. This hypothesis would also be consistent with the assumptions associated with Cairns and Cairns' (1991) model. For example, constraints on development should limit the types of groups accessible to aggressive children (perhaps to those that are also more aggressive), and thus represent selection influences. Once accepted into such a group, socialization forces should act to reinforce similarity among group members with respect to any number of attitudes, values, and behaviors (including aggression).

Extremely Aggressive Groups

Kindermann (1996) suggested that "the *psychological characteristics* of a child's peer group members constitute an important social context for his or her development. Thus, it is necessary to identify the aspects of the peer group(s) that are hypothesized to influence (or be influenced by) the developing child. These factors can include peer behaviors, competencies, values, or beliefs. In general, groups can be described as a joint function of the characteristics of their members and it is these characteristics, expressed in interactions, which are likely to influence the individual development of members" (p.

163). Thus, in the context of relational aggression, the degree to which peer groups members engaged in relationally aggressive behaviors was perceived to constitute an important context for peer group members, one that might impact upon their social development.

In previous studies, researchers have generally focused on the identification and adjustment of extremely overtly or relationally aggressive *individuals*. Although informative, it is possible that this may represent a somewhat simplistic view of adjustment. Consequently, a somewhat different approach was undertaken in the present study, in that the focus was on aggressive behaviors at the level of the *group* or the network. In the present study, it was hypothesized that the psychological characteristics of adolescents' peer groups (i.e., the degree of relational aggression displayed by *group* members) would also constitute an important context for adolescents' social adjustment.

Therefore, a second goal of this study was to examine a specific subset of these groups (highly aggressive groups) in greater detail, identifying both the characteristics of these groups and the adjustment of extremely aggressive group members. Thus, extremely aggressive groups were identified based on the average aggression (overt, relational) scores of all group members (see the "measures" section for a more detailed description regarding the identification of these groups). Specifically, four different types of groups were identified: (1) overtly aggressive; (2) relationally aggressive; (3) overtly plus relationally aggressive; and (4) non-aggressive.

Characteristics of Aggressive Groups

To begin with, some general characteristics of each of these four types of groups were examined, including: *gender* composition (female, male, mixed gender), *size*

(number of members), *aggression status of individual* members (extremely relationally aggressive, overtly aggressive, overtly plus relationally aggressive or non-aggressive) within these groups, and *exclusivity/cohesion* within these groups.

Gender. First, gender differences in the composition of group members were compared. To begin with, the number of overtly, relationally, overtly plus relationally aggressive, and non-aggressive peer groups that were composed only of girls, only of boys, or both boys and girls were reported. Results of past research have indicated that boys were generally identified as being more overtly aggressive than girls, and girls as being more relationally aggressive than boys (e.g., Crick & Grotpeter, 1995). Thus, it seemed likely that highly *overtly aggressive* might be composed of all-male members or perhaps even mixed-gender groups. On the other hand, highly *relationally aggressive* groups might be more likely to be female-only or mixed-gender groups.

Size. There has been some indication, however, that boys' groups might be slightly larger than girls' social groups, although these findings have not always been consistently reported (see Cairns et al., 1998, for a review). Thus, it was expected that boys' groups might be somewhat larger than girls' groups. No predictions were made regarding the size of *aggressive* versus *non-aggressive* peer groups, since there did not appear to be any reason to suspect that these groups would differ in terms of the number of members.

Aggression status of group members. A second goal of this study was to take a closer look at aggression in the context of these groups, by identifying *individuals* within these groups who were extremely aggressive (i.e., overtly aggressive, relationally aggressive, overtly plus relationally aggressive). According to the principles of holism

and constraint, one would expect similarity with respect to levels of overt and relational aggression displayed by group members. However, even though group members were expected to be similar, some variability in aggression levels was also expected. In addition, since aggressive groups were identified based on average aggression scores across *all members of each group*, some members within these groups would likely have scores that were somewhat higher than others. Given that aggressive and non-aggressive *individuals* were identified using cut-off scores, it was likely that some of the adolescents in these “*aggressive groups*” would be identified as being aggressive individuals and that others might be identified as “non-aggressive individuals”, according to the criteria normally used to distinguish between aggressive versus non-aggressive individuals (e.g., Crick & Grotpeter, 1995). However, it was also expected that most of the adolescents identified as being aggressive on an *individual* basis (e.g., overtly, relationally, overtly plus relationally) would also be members of *aggressive groups*, but would be fairly unlikely to be members of *non-aggressive groups*. Thus, the design of the present study offered an additional opportunity to assess relations between aggression at different levels (individual, network).

Exclusivity/Density. A final goal was to determine whether dyadic interactions/relationships were more likely to occur within or outside of social networks as a function of the average level of aggression within the group. In order to provide a simple index of the levels of exclusivity and density within groups – friendship nominations within versus outside of groups were compared. Grotpeter and Crick (1996) found that relationally aggressive children and their friends (but not overtly aggressive children) reported greater exclusivity within their friendships than did non-aggressive

children. Based on these findings, one might hypothesize that highly relationally aggressive peer groups might also be more “exclusive”, in that adolescents in these groups would report a higher percentage of reciprocal close friendships (i.e., based on three first best friend nominations) within versus outside of these groups as compared to adolescents in other aggressive groups or non-aggressive groups.

Adolescents were also able to make unlimited friendship nominations (i.e., “in addition to your three best friendships, do you have any other good friends in your grade?”). Based on these nominations, the density of these groups was determined by examining the percentage of reciprocated friendships within the group (i.e. the total number of reciprocal friendships reported, out of the total number of reciprocal friendships possible for each group).

Social Adjustment of Peer Group Members

Based on the nature of relational aggression (i.e., manipulation of friendships and peer relationships), it was expected that both highly relationally aggressive individuals, as well as those who experienced frequent contact with these individuals would experience greater social adjustment difficulties. Thus, members of highly aggressive versus non-aggressive groups were compared with respect to the degree of *victimization* (physical, relational), feelings of *loneliness*, and security of *attachment to peers*. It was expected that relationally aggressive groups would consist mostly of girls, whereas overtly aggressive groups would consist mostly of boys. For this reason, analyses were performed separately for relational and overt aggression, comparing relationally aggressive female groups and non-aggressive female groups, as well as comparing overtly aggressive male groups and non-aggressive male groups. It was also possible that

in addition to differences in adjustment related to membership in aggressive versus non-aggressive groups, adjustment might also vary as a function of one's centrality within these groups. Therefore, if a large enough number of aggressive groups was identified, centrality within these groups (i.e., nuclear, secondary, peripheral) would be examined as it related to adjustment as well.

Overall, it was expected that members of aggressive groups would report more social adjustment difficulties than members of non-aggressive groups. For example, membership in relationally aggressive peer groups might also be associated with *victimization*. Members of these groups might experience relationally aggressive acts directed at them by other group members, or possibly even as a more indirect function of their association with relationally aggressive individuals. Alternatively, relationally aggressive children might accept or choose to include those children whom they perceived to be easy targets for victimization into their groups.

Werner and Gieger (1999) reported that relationally aggressive children, particularly girls, had friends who were more relationally victimized than were the friends of non-aggressive children. On the other hand, physically aggressive boys were more likely to have friends that were physically victimized. One might extend these results, therefore, to hypothesize that members of relationally aggressive adolescent peer groups might be more relationally victimized than members of non-aggressive groups. On the other hand, members of overtly aggressive boys groups might be more likely than members of non-aggressive boys' groups to be overtly victimized.

In addition, membership in highly relationally aggressive peer groups, may be related to the "quality" of one's relationships. Results of research also indicated that

overtly aggressive children experienced social adjustment difficulties (e.g., peer rejection, loneliness; Crick & Grotpeter, 1995; Rys & Bear, 1997). Overt forms of aggression have also been linked to insecurity of representations of attachment to peers (Laible et al., 2000). Due to the nature of relationally aggressive actions (i.e., threats of friendship termination or group exclusion), it was also hypothesized that members of relationally aggressive groups might experience less security in attachment relationships with their peers. For example, frequent use of relationally aggressive strategies, such as threats to terminate friendships or exclude a child from the group, might lead to generalized feelings of mistrust or *insecurity* with respect to close relationships, and perhaps greater feelings of *loneliness*. On the other hand, it was also possible that adolescents with social adjustment problems might also be “selected” into these groups in some manner (e.g., self-selection, recruitment by extremely relationally aggressive children). Thus, it was predicted that members of highly aggressive groups might experience poorer adjustment in these domains (i.e., loneliness, insecure attachment representations), as compared to members of non-aggressive groups.

Individual and Relational Variables: Predicting Social Adjustment

The final objective of this study was to determine how both individual behavioral characteristics (e.g., aggression) and aspects of adolescents’ relationships with others (e.g., level of aggression displayed by one’s peer group members) might be related to social adjustment (e.g., victimization, loneliness, attachment). There has been considerable speculation regarding the potential influence of peer group members with respect to behavioral and psychological adjustment (e.g., Kindermann, 1996). However, little research has been conducted so far, to determine whether information about

adolescents' groups and behavioral characteristics of group members would provide additional information regarding social adjustment beyond that which could be predicted by simply determining characteristics of the individual, particularly in the case of relational aggression. Thus, characteristics of one's social groups (e.g., group members' aggressive behavior) were assessed to determine whether group members' behavioral characteristics would add additional information in the prediction of adjustment. As such, this analysis provided a test of the power of the "behavioral configuration" of one's *network* or group to predict beyond the behavioral organization of the *individual*.

Specifically, adolescents' social adjustment (physical and relational victimization, loneliness, and attachment) was examined with respect to relational and physical aggression. Thus, individuals' own level of aggressive behavior (overt, relational) was used to predict their adjustment. It was hypothesized that aggression in the context of one's relationships (e.g., relational aggression exhibited by peer group members) would provide additional information about adolescents' social adjustment, beyond that which could be explained by one's own aggressive behavior. Based on the propositions generated by Cairns and Cairns' (1991) model, it was expected that contributions to adjustment would be somewhat similar (e.g., both would predict greater maladjustment), but that aggression profiles of one's group would provide additional information in this regard (e.g., relational aggression at the level of the group would be associated with maladjustment after accounting for the level of relational aggression displayed by the individual).

One final prediction was made regarding the contribution of overt and relational aggression to adjustment. Given that the specific adjustment indices were selected

precisely for their observed association with relational aggression, it was expected that only relational aggression would be uniquely associated with the majority of adjustment indices assessed in the present study (with the potential exception of overt victimization).

Method

Participants

Parental consent letters (see Appendix A) were sent home with the children. In order to encourage children to participate, all children were offered a reward for returning their consent forms (e.g., a draw at each school to receive a \$25 gift certificate from a local music store and/or a draw for a pizza party for any classes in which all children returned their consent forms). The reward was offered simply for returning consent forms, whether children consented to participate or not.

A total of 466 adolescents in grades 7 and 8 from 5 schools in the rural Ottawa area participated in the present study, representing a 79% participation rate.¹ It should be noted that the majority of students who did not participate either did not return their consent forms or were absent on the day of testing (as opposed to returning their consent forms marked “no”, indicating a direct refusal to participate). The participation rate within classrooms ranged from 53% to 100%. Cairns and colleagues (in press) have suggested a lower limit of $n = 10$ or 50% of respondents within the social network to obtain an accurate picture of children’s peer affiliations. Two of the classes within our sample fell quite near the lower limits suggested by Cairns and colleagues (i.e., 10 participants reflecting a 53% participation rate; and 13 participants with a 54% consent

¹ Since adolescents’ were able to nominate anyone in their class for overt and relational aggression, data was available for these two variables for all children. An initial check of the data (MANOVA) indicated that non-participants did not differ significantly from participants with respect to their peer nominated overt and relational aggression scores.

rate). Based on concerns about the reliability of adolescents' behavioural and group nominations, these two classes were excluded from the remaining analyses.² The consent rates for the remaining classes were all above 60%. Thus, the results to follow were based on a total of 425 participants (223 females, 202 males) from 20 classrooms in 5 schools. Although information related to ethnicity and socio-economic status was not explicitly collected, the schools were located in areas with populations that were primarily Caucasian, and consisted mostly of families in the low to middle socio-economic status range.

Procedure

Children who received permission were asked to participate in a data collection session, lasting approximately one hour. Trained graduate students and senior undergraduate students administered questionnaires in students' regular classrooms. Written instructions were presented for each questionnaire. However, the researchers also discussed these instructions orally prior to administration of each measure to ensure that students understood the instructions. Then, students were allowed to complete the measure on their own, by recording their responses on the answer sheet provided. Finally, at the end of the study, children were debriefed regarding the purpose of the study (see Appendix B) and a debriefing letter was sent home to their parents (see Appendix C).

² The two classes were from the largest school in the study: one of the six grade 7 classes, and one of the four grade 8 classes. It was also important to note that in most cases involving groups formed within these two classes, the groups were non- or minimally-overlapping with other classes at that grade level, thus the entire group was deleted from any analyses involving group membership or centrality. However, there were two cases (one in grade 7 and one in grade 8), where members of the eliminated classes formed a group with members of a class that was retained for analysis (i.e., approximately half of the group was from one of the eliminated classes and the other half of the group was from a class retained for analyses). To simply retain half of the group as representative of the whole group did not seem to be a realistic portrayal of the actual group that existed. Since virtually all of the analyses performed in the present study were concerned with group membership in some manner, these few children from participating classes, who were members of these 2 groups involving classes with low participation rate, were excluded from the study as well.

Measures

Behavioral Nomination Measure (Crick & Grotpeter, 1995)

The Behavioral Nomination Measure³ consisted of 14 items that described aggressive and prosocial behaviors. Five of these items referred to relationally aggressive behavioral characteristics (e.g., when mad, starts being friends with someone else to get back at the person), five items assessed overt aggression (e.g., hits, kicks, or punches others), and four items assessed prosocial behaviors (e.g., says or does nice things for others). Participants were asked to list up to three of their classmates who displayed each of these characteristics (see Appendix D).

Crick and Grotpeter (1995) demonstrated adequate inter-item reliability for this measure (alpha ranged from .83 to .94 for these scales). Similar results were obtained for the present sample, with Cronbach's alpha = .89 and .95 for relational and overt aggression, respectively⁴. Children's peer-assessed overt and relational aggression has been found to be stable over a six-month period (boys' overt aggression: $r = .78, p < .001$; boys' relational aggression: $r = .56, p < .001$; girls' overt aggression: $r = .68, p < .001$).

³ Several of the measures utilized in the present study, including the Behavioral Nomination Measure and the Social Experience Questionnaire (described later in the measures section) have more commonly been utilized with younger children (e.g., Grades 3-6). In order to determine whether these items would also be appropriated for use with older students, a pilot study was conducted with a sample of 34 students in Grades 7, 8, and 9. Results indicated that adolescents' responded to the items with ease, and seemed able to answer all of the items provided for both questionnaires. A final question was also presented to students following completion of these questionnaires, asking whether there was anything that they didn't understand or anything that didn't make sense to them. They were also asked whether they thought that some of the questions might be better for older or younger students, or if they understood the questions and thought that they made sense for students around their age. Overall, children's responses to the study were overwhelmingly positive. Students reported that they enjoyed the study and that they had few difficulties understanding the questions. Only 3 of the students (one in Grade 8, and 2 in Grade 9) suggested that one or two of the questions might have been appropriate for younger children. Given the generally positive response to the questionnaires, particularly by Grade 7 and 8 students, it was deemed that these two questionnaires were appropriate for use with the present sample.

⁴ A principal components factor analysis was also conducted on the scores adolescents' received for this measure. Results indicated that each of the items loaded appropriately on the expected scales, thereby replicating the factor structure for this measure in the present sample of adolescents.

.001; girls' relational aggression: $r = .68, p < .001$). Results of several studies have demonstrated the predictive validity of this measure, with overt and relational aggression predicting social adjustment difficulties, such as peer rejection, loneliness, and depression (e.g., Crick, 1996; Crick & Grotpeter, 1995; Rys & Bear, 1997).

In order to calculate total scores for overt and relational aggression, the number of nominations that children received for each of the items on this measure was summed. Thus, each child received a score (ranging from 0 to the total number of children in the class minus 1) for each of the 14 items in the measure. Due to the fact that the number of children in each classroom varied, these scores were standardized within each classroom. Standardized scores were then summed to yield total scores for overt and relational aggression.

Friendship Nominations

Friendship is generally measured by asking children to nominate their best friends. However, there were two issues to consider: unilateral versus reciprocal nominations, and limited versus unlimited friendship choices. First, unilateral nominations (i.e., only one child makes a nomination), may result in nominations based more on popularity than friendship, and are less likely to be reciprocated by the other child (see Berndt, 1982). These nominations also tend to be somewhat less stable than reciprocal friendship nominations (Bukowski & Hoza, 1989). For these reasons, friendships are most commonly assessed through the use of reciprocal nominations (e.g., Berndt, 1982; Bukowski & Hoza, 1989). Thus, only reciprocal friendships were considered to constitute a "friendship" for the purposes of the present study.

There has been somewhat less consensus in the friendship literature with regards

to the use of limited versus unlimited friendship nominations. Researchers in this area have commonly adopted a limited choice procedure, with a maximum number of three friendship nominations per child (e.g., Grotperter & Crick, 1996; Parker & Asher, 1993). However, there are disadvantages associated with the use of both these methods. For example, researchers employing a limited choice procedure run the risk of leaving some friendships unidentified. On the other hand, children providing unlimited friendship nominations may nominate some children who are not really their friends.

Thus, in the present study, both methods were employed. Adolescents' were asked to nominate their three best friends, as well as any other good friends in their grade at school (see Appendix E), since both of these methods could provide unique information about adolescents' relationships. In the present study, limited nominations were employed to assess exclusivity within groups, and unlimited nominations were employed to assess group density.

Peer Groups

The social-cognitive map (SCM) method (e.g., Cairns, Gariepy, Kindermann, & Leung, in press) was used to identify adolescents' peer groups. Participants were asked to nominate specific peer groups or clusters of individuals within their grade⁵ in their school, "Are there people who hang around together a lot? Who are they?" (e.g., Cairns et al, in press). Subsequently, adolescents were asked to nominate individuals whom they

⁵An exception to this rule was made in one of the small schools with two mixed 7/8 grade classrooms. A conversation with the classroom teachers indicated the two classrooms were often joined for their lessons (i.e., the teachers often "team-taught" both classes together) and also that there was a lot of interaction across the two classes and across the two grades, both during class and unstructured time (perhaps due to the fact that these two mixed grade classes were so often joined together). Given that these adolescents' relationships appeared to include a lot of mixed grade interactions, the decision was made to let adolescents in this school make group nominations across both grades, given that this seemed to reflect a more "realistic" portrayal of their actual interactions. Even given this decision, once the results from this school were analyzed using the SCM program, the majority of the identified groups from this school consisted of only grade 7 or only grade 8 students.

considered to be isolates, “Are there any people who don’t hang around with a particular group?” (see Appendix F). The computer program used to analyze adolescents’ nominations gives several options including the option to include all reports, or to exclude self-nominations to groups. The later option was selected in the present study in order to ensure that there were no biases based on self-reports for group membership or centrality. Although this method was originally developed as an interview technique, the questions have also been given in questionnaire format (e.g., Xie et al., 1999).

With respect to the identification of isolates, based on the analysis of adolescents’ responses to the question “Who are the people who hang around together?”, the SCM computer program generates a list of isolates (i.e., those children who do not have any significant connections to any of the identified peer groups). However, responses to the second question designed specifically to identify isolates within the network, “Are there any people who don’t hang around with a particular group?” can not be entered into the SCM program for analysis. Several researchers have suggested that responses to this question be examined separately for comparison with the output provided by the SCM program (T. Kindermann, personal communication, January, 2003; M. Leung, personal communication, January, 2003). An examination of adolescents’ responses to this question indicated that there were some students who received an extremely high number of nominations to the “isolate” question, but received very few nominations to the peer group to which they had been identified as being a member. Thus, the following criterion was employed to determine whether these adolescents should be identified as an isolate or as a group member: any adolescents who had received more than twice the number of

“isolate nominations” as they had received “group nominations” were removed from the group and were instead identified as isolates.

The SCM procedure was then used to identify: (1) clusters of individuals and connections among persons, and (2) the centrality or peripherality of persons and clusters in the social network (Cairns et al., in press). Adolescents’ nominations of specific peer groups within their grades were used to construct a Person (row) by Respondent (column) matrix, representing group assignment. Thus, the recall matrix provided information gained from respondents regarding group membership of the persons in the network unit (Cairns et al., in press). In the second step the information in the recall matrix was transformed into a “co-occurrence” matrix, in which instances of joint cluster membership were calculated (see Appendix G for an example from Cairns et al., in press).

Shown in the diagonal of the matrix was the number of times that each person was nominated to any group. In addition, each off-diagonal cell in the co-occurrence matrix represented the number of times a specific person (column) was nominated in the same group as every other person (row) in the matrix. The person-profiles of all pairs of persons were then compared (e.g., correlating the column which describes the co-occurrence of “Person A” with all other persons with the column which describes the co-occurrence of “Person B” with all other persons). Groups were then identified by clustering individuals with similar social affiliation profiles, using a cut-off score of $r > .40$. These groups were generally non- or minimally overlapping (Cairns et al., in press).

Based on the assumption that individuals and groups that were named more often were more central in the network, the frequencies of nominations (shown in the diagonal of the co-occurrence matrix) were employed to determine centrality. Thus, groups were

defined as high-, medium-, or low-centrality relative to the entire network, and individuals were classified as high-, medium-, or low-centrality within their respective groups (see Appendix H for criteria recommended by Cairns et al., in press, for identifying these groups).

The SCM procedure has been employed with various age groups, from middle childhood through adolescence, with network units ranging from 8 to 150 people (see Cairns et al., in press, for a review). Concurrent validity of the SCM procedure has been demonstrated. Results indicated that clusters tended to be similar with regards to several characteristics (e.g., gender, race, aggression, grade failure). Moreover, independent assessments of “leadership” and “popularity” have been found to be associated with network centrality (e.g., “nuclear” members of peer groups; see Cairns et al., in press, for a review). Group membership has also been found to be predictive of later adjustment problems, such as dropping out of school (Cairns, Cairns, & Neckerman, 1989).

Construct validity has also been demonstrated through comparisons of groups generated using the SCM procedure and self-reports of group membership. For example, results indicated significant associations with SCM generated groups and self- or best-friend reports of group membership (Cairns, Leung, Buchanan, & Cairns, 1995). However, groups identified using the SCM procedure were more inclusive and were more likely to be unaffected by the distortions inherent in self-report procedures. Cairns et al. (in press) also suggested that there was relatively high inter-informant agreement with respect to descriptions of social networks. Although few respondents tried to describe the entire network, there was typically high agreement among the regions that they do report. For example, Cairns, Perrin, & Cairns (1985) reported 96% inter-

informant agreement with-respect to the inclusion of individuals in social groups.

Moderate stability of peer group membership and centrality within groups has been reported over the short-terms (e.g., 3- to 12-week periods) and the long-term (e.g., over the course of the school year, or from one year to the next; see Cairns et al., in press for a review). In a review of the literature, Cairns, Xie, and Leung (1998) reported moderate stability of peer groups over the short term. Although exact replication of peer group membership is rare, most groups (i.e., 66% to 100%) showed only moderate membership change over a period of three to six weeks. Over the course of the school year, stability estimates were significantly lower. For example, depending on participant age, criteria for identifying groups, and methods for assessing stability, from 18% to 76% of peer groups may be considered stable. Finally, when stability was assessed from one year to the next, peer clusters were identifiable in approximately 50% to 67% of cases when children were kept together as a class from one year to the next, but this estimate dropped to about 10% stability when children were reassigned to different teachers and classrooms consisting of different peers on an annual basis.

Social Experience Questionnaire (Crick & Grotpeter, 1996)

The Social Experience Questionnaire (SEQ) measured relational victimization (5 items), overt victimization (5 items⁶), and receipt of prosocial acts (5 items), each of which were rated on a 5-point scale (see Appendix I). The *relational victimization* sub-

⁶ Two of the five overt victimization items cross-loaded quite highly in Crick & Grotpeter's (1996) study and were therefore dropped from the scale in their sample. Results of a principal components analysis conducted with the present sample indicated that one of the overt victimization items "How often do other kids yell at you and call you mean names?" actually loaded more strongly on the relational as opposed to the overt victimization scale. Crick (personal communication, January, 2003) indicated that they generally did not include this item as part of the scale as it does not tend to load exclusively on one factor and she also suggests that it may reflect a different form of victimization altogether (i.e., "verbal insults"). Based on these suggestions, the overt victimization item in question was dropped from the scale, and overt victimization was thus assessed utilizing only the remaining 4 items for the present sample.

scale measured the frequency of children's reports of manipulation and threats with respect to their friendships, the *overt victimization* sub-scale measured the frequency of children's reports of being physically harmed or verbally threatened, and the *prosocial* sub-scale assessed how often children received caring, helping and other supporting acts. All sub-scales demonstrated adequate reliability ($\alpha = .80, .78, .77$, respectively). Similar results were obtained for the present sample (Cronbach's $\alpha = .81, .81, .79$, respectively). Predictive validity of this measure has been demonstrated, indicating that overt and relational victimization were associated with various aspects of children's social adjustment (e.g., peer rejection, emotional distress, depression, loneliness, social anxiety, social avoidance; Crick & Bigbee, 1998; Crick & Grotpeter, 1996).

Loneliness Questionnaire (Asher & Wheeler, 1985)

This measure consisted of 24 items, 16 of which were designed to assess children's feelings of loneliness, social adequacy or inadequacy, and subjective perceptions of peer centrality. The remaining 8 items were considered "filler" items and assessed children's hobbies or preferred activities. Each of the items was rated on a 5-point scale, ranging from "always true" to "not true at all" (see Appendix J). Responses to each of the primary items were averaged (following reverse scoring of several of the items) to yield a total loneliness score. The 16-item scale has been found to be internally consistent (Cronbach's $\alpha = .90$; Asher & Wheeler, 1985; as well as for the present sample). Moreover, Hymel, Freigang, Franke, Both, Bream, and Borys (1983; see Asher et al., 1990) reported a correlation of .55 between children's initial loneliness scores and those assessed one year later.

Results indicated that loneliness, as assessed by this questionnaire, has been found to be negatively associated with both positive and negative sociometric ratings and best friendship nominations (e.g., Asher et al., 1984; Asher & Wheeler, 1985; Parker & Asher, 1993). Although this questionnaire was originally developed for use with children in late elementary school (i.e., grades three through six), researchers have successfully made slight modifications to the wording of the questions to make it appropriate for use with middle-school students (i.e., grades 7 and 8; Parkhurst & Asher, 1992).

Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987)

The IPPA was developed to assess several dimensions of attachment to parents and peers. Armsden and Greenberg (1987) suggested that “the ‘internal working model’ of attachment figures may be tapped by assessing (1) the positive affective/cognitive experience of trust in the accessibility and responsiveness of attachment figures, and (2) the negative affective/cognitive experiences of anger and/or hopelessness resulting from unresponsive or inconsistently responsive attachment figures” (p. 431). Only the Peer Attachment Scale of the IPPA was used in the present study. This measure consisted of 25 items that were rated on a 5-point scale (see Appendix K). Adolescents were generally asked to respond to the questionnaire with respect to the peers who most influenced them.

The measure consisted of three subscales: Trust (10 items; $\alpha = .91$), Communication (8 items; $\alpha = .87$), and Alienation (7 items; $\alpha = .72$). Similar results were obtained for the present sample (cronbach’s $\alpha = .89, .88, .66$, respectively). A summary score representing overall security-insecurity of attachment was also obtained by reverse scoring all items on the Alienation scale and then summing all items for all three scales. Test-retest reliability was .86 for the Peer Attachment scale.

Convergent validity for this measure has been established, indicating that attachment to peers was related to psychological well-being, particularly self-esteem and life satisfaction (Armsden & Greenberg, 1987). Similar results have been reported by other researchers, indicating that attachment to friends (IPPA) was associated with global self-esteem among a sample of senior-high school women (e.g., Davila, Hammen, Burge, Daley, & Paley, 1996).

Paterson, Pryor, and Field (1995), however, reported that attachment to parents, but not peers, was associated with adolescents' *overall self-esteem*. On the other hand, the quality of attachment toward both parents and peers was correlated with adolescents' *social competence*. Attachment to parents and peers has also been found to be related to identity formation and adjustment to college (Lapsley, Rice, & FitzGerald, 1990). Both personal identity (conception of the self and feelings of continuity and uniqueness) and social identity (sense of one's role and relationships) were significantly predicted by both attachment to parents and peers. In addition, some evidence was found for both independence and integration of parental and peer attachment in the prediction of adjustment to college. Several aspects of adjustment appeared to be predicted by both attachment to parents and peers (personal-emotional adjustment, social adjustment, goal commitment), although attachment to peers contributed beyond that accounted for by parental attachment. In contrast, academic adjustment was predicted uniquely by attachment to parents.

Results

Briefly, the results section was organized in the following manner. First, the number of extremely aggressive and non-aggressive *individuals* within the sample was

identified. Second, a general description of all identified groups was presented (e.g., total number, size, gender composition). Next, centrality of aggressive and non-aggressive *individuals* within the social network and similarity among group members with respect to overt and relational aggression was assessed. Then highly overtly and relationally aggressive *groups* of individuals were identified. The general characteristics of these aggressive groups were compared (e.g., size, gender composition, exclusivity, and density of connections within the group) and the social adjustment of members of highly aggressive groups was investigated. The final goal in this section was to assess the relative contribution of aggressive behavioral styles at different levels of social complexity (i.e., the level of the individual, friendship, and group) to determine whether behavioral characteristics of adolescents' relationship partners contributed additional information regarding their social adjustment beyond that which could be accounted for by the degree to which the individual himself or herself displayed aggressive characteristics.

Before presenting a description of the results, however, it was important to mention the treatment of missing data. Missing data was evident on all the dependent variables in the present study (i.e., loneliness, overt and relational victimization, attachment). The missing data appeared to be random and seemed to reflect the fact that participants simply missed one or two questions across the set of questionnaires. In order to deal with this issue, mean scores for the particular questionnaire (or scale) were simply calculated based on all remaining scores. However, if more than 75% of an individual's responses were "missing" for a particular questionnaire (or scale), the data was treated as

missing for that particular questionnaire for that particular individual (see Rose and Asher, 1999, for a description of similar criteria employed to deal with missing data).

Identification of Aggressive Individuals

Adolescents were classified as aggressive versus non-aggressive, following the procedure established by Crick and Grotpeter (1995). Adolescents with scores more than one standard deviation (SD) above the sample mean on the relational aggression scale and less than one SD above the sample mean on the overt aggression scale were classified as *Relationally Aggressive*. Adolescent with scores more than one SD above the sample mean on the overt aggression scale and less than one SD above the sample mean on the relational aggression scale were classified as *Overtly Aggressive*. Adolescents with scores more than one standard deviation (SD) above the sample mean on both the overt and relational aggression scales were *Overtly and Relationally Aggressive*. Finally, all the remaining children (i.e., those with scores below one standard deviation above the sample mean on relationally and overtly aggressive scales) were classified as *Non-Aggressive*.

The number of boys and girls classified into each of these categories were displayed in Table 2. As can be seen from the table, only one overtly aggressive girl, one relationally aggressive boy, and very few overtly plus relationally aggressive individuals were identified in the sample. Thus, some descriptive information will be provided regarding these individuals. Due to small cell sizes for these groups, the majority of the statistical analyses for individuals were conducted separately by gender, comparing relationally aggressive girls to non-aggressive girls, and comparing overtly aggressive boys to non-aggressive boys.

It is also important to note that gender differences in peer nominations for different forms of aggression were also obtained when the average number of nominations was examined. Results of a MANOVA conducted using adolescents' continuous scores on overt and relational aggression as the DVs and gender as the IV, was significant, $F(2, 422) = 120.80, p < .001, \eta^2 = .36$. Results of the univariate tests were significant for both overt, $F(1, 423) = 69.97, p < .001, \eta^2 = .14$; and relational aggression, $F(1, 423) = 32.04, p < .001, \eta^2 = .07$. Males ($M = 1.71, SD = 5.15$) were more likely to be nominated as being overtly aggressive than females ($M = -1.60, SD = 2.77$). Conversely, females ($M = .87, SD = 4.79$) were more likely to be nominated as being relationally aggressive than males ($M = -1.26, SD = 2.53$).

Adolescents' Peer Groups

Based on the sample of 425 children, 69 groups were identified using the SCM program (Cairns et al. in press). In addition to the identified peer groups, a total of 6 isolates were identified within the sample, 3 males and 3 females. One of the male isolates was overtly aggressive. The other two male isolates and all of the female isolates were classified as non-aggressive.

Table 2.

Number of Males and Females Classified as Aggressive versus Non-aggressive.

Individual		
Aggression Status	Males	Females
	<hr/>	
Overt	42	1
Relational	1	37
Overt & relational	9	10
Non-aggressive	150	175

Descriptive Information Regarding All Identified Groups

Gender. Twenty-seven of the groups were composed of all male members, 28 were all female, and the remaining 14 groups were mixed gender groups. The mixed gender groups ranged with respect to gender composition, including some groups with only one male and many females to one female and many male participants, as well as many different combinations of male and female participants that fell in between these two extremes. With regards to the overall centrality of these groups, 34 were considered to be “nuclear” groups, 26 were “secondary” groups, and 9 were “peripheral” groups.

Size. The 69 peer groups ranged in size from 1 to 31 participants ($M = 7.62$, $SD = 6.52$)⁷. The mixed gender peer groups ranged in size from 2 to 31 participants ($M = 14.43$, $SD = 9.99$), all-male groups included from 1 to 18 participants ($M = 6.22$, $SD = 4.80$), and all-female groups included from 1 to 11 participants ($M = 5.57$, $SD = 2.57$). Results of an ANOVA conducted to examine size differences in the numbers of participants included in each of the three different types of gender groups was significant, $F(2, 66) = 13.03$, $p < .001$, $\eta^2 = .28$. Multiple comparison tests, conducted using the Bonferroni correction, indicated that the mixed gender groups were larger than both the female-only and the male-only gender groups, $p < .001$.

Due to the small number of mixed gender groups, the majority of analyses that were focused at the level of the group were conducted based on single-gender (all-male or all-female) groups. Furthermore, since very few “peripheral groups” were identified

⁷ Information regarding groups is reported based on information regarding only adolescents' who participated in the study. Thus, the 5 groups that included only one participant (and other non-participants) were excluded from this analysis. Furthermore, the size of the groups was likely somewhat larger than the statistics reported here, depending on whether any non-participants were members of any of these groups.

within the sample, secondary and peripheral “groups” were combined in order to make comparisons between *nuclear* and *non-nuclear* (i.e., combination of secondary and peripheral) groups.

Multiple-group membership. A second issue that could have potentially affected the manner in which the remainder of the analyses were conducted was the fact that there was quite a high degree of overlap with respect to membership in some of the groups. Of the 69 groups identified, 32 of the groups had some degree of overlap in group membership that ranged from 1 to 24 participants⁸. A total of 80 students belonged to more than one group (53 to two groups, and 27 to three groups).

Given the overlap in group membership, it was first of interest to determine whether aggressive individuals were any more likely than non-aggressive individuals to be members of multiple groups. The results of the chi-square test comparing the number of relationally aggressive versus non-aggressive females who were multiple group members was not significant, $\chi^2 (1, N = 209) = 2.07, p = .15$. Similarly, the result of the chi-square test comparing the number of overtly aggressive versus non-aggressive males was not significant, $\chi^2 (1, N = 189) = 1.47, p = .23$. Thus, there was no evidence to suggest that aggressive adolescents were any more likely to be members of multiple groups than non-aggressive adolescents.

In order to conduct analyses based on aggressive individuals or aggressive groups, it was first necessary to make some decisions regarding the individuals who were members of more than one group. Thus, multiple group members were assigned to the

⁸ Although a cluster of 24 participants who were part of two different even larger groups sounds like an extreme amount of overlap, this was a relatively rare occurrence, and happened mostly only with respect to overlap among various mixed gender groups. In fact, in the vast majority of instances of overlapping group membership, the overlap in membership between the two groups ranged from 1 to 3 individuals.

group in which they were the most nuclear member, based on the assumption that this group would be the most relevant for their adjustment. If students were nuclear members in all groups that they belonged to, then they were assigned to the *group* that was the most nuclear within the social network.⁹

Two exceptions were made to this general rule, however. First, the majority of groups identified within the sample were single-gender, and therefore single-gender groups were of primary interest for the analysis. In order to utilize as many “single-gender” groups as possible, in the few cases where adolescents belonged to both single-gender and mixed-gender groups, they were assigned to the single gender group. Also, there were several cases where a cluster of students belonged to more than one group (e.g., 3 adolescents who were all members of two different larger groups). Since these clusters of individuals were observed together in both groups, it was presumed that they were a core group of individuals who should remain together. Thus, the entire cluster of individuals was assigned to the group in which the majority of members were the most nuclear (or to the group that was the most nuclear within the network).

Aggressive Individuals and Centrality Related to Group Membership

As discussed previously, based on the SCM program (Cairns et al., in press), two indices of centrality may be obtained: *within group* centrality (i.e., the centrality of each individual relative to all other individuals within his/her peer group), and *overall group* centrality (i.e., the overall centrality of that person’s peer group relative to all other

⁹ In order to ensure that results were not simply a function of the manner selected to assign multiple group members a unique group, a second variable was also created including, again, adolescents who were members of only one group, but assigning multiple members to their “secondary” group, rather than their most nuclear group. Whenever possible, any analyses conducted with the primary variable (with members assigned to their most nuclear group) were also repeated with the second variable. Unless otherwise reported, the results from analyses conducted with the second variable did not differ in any significant manner from the first.

identified peer groups within the grade level). Each of these two indices of centrality was examined in this section to determine potential differences in the number of aggressive and non-aggressive individuals classified as nuclear versus non-nuclear.

Centrality of Extremely Aggressive Adolescents Within their Peer Groups

To assess centrality of extremely aggressive individuals within their groups, two chi-square analyses were conducted to compare the percentage of relationally aggressive versus non-aggressive girls and the percentage of overtly aggressive versus non-aggressive boys who were nuclear versus non-nuclear members of the network¹⁰. Results of the chi-square tests were not significant for girls, $\chi^2(1, N = 209) = .12, p = .73$; or for boys, $\chi^2(1, N = 189) = .19, p = .66$, indicating that there was no reason to suspect that aggressive adolescents were any more or less likely than non-aggressive adolescents to be nuclear members within their peer groups.

Overall Centrality of the Peer Group to which Extremely Aggressive Adolescents' Belonged

In addition to adolescents' individual centrality within their respective groups, the SCM program also provides information regarding the overall centrality of each group within the social network (i.e., the relative centrality of each group to the remaining groups within that grade level at the respective school). To determine differences between the overall centrality of the groups to which aggressive and non-aggressive individuals belonged, two chi-square analyses were conducted. One compared the percentage of relationally aggressive versus non-aggressive girls and the other compared the percentage of overtly aggressive versus non-aggressive boys who were members of

¹⁰ Physically plus relationally aggressive adolescents were not included in the present analyses due to expected cell frequencies less than 5. Likewise, secondary and peripheral members were combined to form one group, due to the small number of peripheral members within the sample.

nuclear versus non-nuclear groups¹¹ (see Table 3). Results of the chi-square test for boys was not significant, $\chi^2 (1, N = 189) = 1.86, p = .17$, indicating that there was no reason to suspect that aggressive boys were any more or less likely than non-aggressive boys to be members of nuclear groups. However, the results of the chi-square test for girls was significant, $\chi^2 (1, N = 209) = 10.02, p < .01$. Based on the analysis of standardized residuals for each cell, results indicated that there were fewer *relationally aggressive* girls ($n = 4$) who were members of non-nuclear groups within the network than would be expected ($n = 12$).

¹¹ Similar to the previous analysis, physically plus relationally aggressive adolescents were not included in the present analyses due to expected cell frequencies less than 5. Due to the small number of peripheral groups within the sample, secondary and peripheral groups were also combined to form “non-nuclear” groups.

Table 3.

Observed and (Expected Frequencies) for the Chi-Square Tests Comparing the Number of Aggressive versus Non-aggressive Males and Females who Belonged to Nuclear and Non-nuclear Groups.

Individual Aggression Status	Overall Group Centrality			
	Nuclear		Non-Nuclear	
Females				
Relational	33	(25)	4	(12)
Non-aggressive	107	(115)	65	(57)
Males				
Overt	23	(27)	18	(14)
Non-aggressive	100	(96)	48	(52)

Group-Based Analyses

The analyses to be conducted in the following sections were all focused at the level of the group. Thus, similarity within groups was assessed and differences between the social adjustment of aggressive and non-aggressive groups of adolescents were compared. However, there were two issues related to participation rates within groups and multiple group members that needed to be addressed prior to beginning the analysis. First, 6 groups, 5 peripheral groups (4 all-male, 1 all-female) and 1 of the secondary groups (all-female) had participation rates less than 50%. In fact, the five peripheral groups (all of which consisted of either 2 or 3 group members) actually included only one participant. This raised problems for a number of the analyses in this section (i.e., it is impossible to compare the similarity between group members with respect to aggression if you only actually have one participant in the group!) Thus, these 6 groups with very low participation rate were eliminated from the analyses in this section, and initial descriptive information is presented on the remaining 63 groups.

Second, one more general comment needed to be made concerning multiple group members. As stated previously, as a general rule, adolescents who were members of multiple groups were assigned to their most nuclear group. However, it is important to note that, in effect, assigning certain individuals to one group meant that they were also being eliminated from other groups in which they were members. There was no reason to suspect that this elimination procedure would have caused any difficulties for the previous analyses.

Some problems were anticipated regarding some of the remaining analyses, however, particularly for the investigation of the social adjustment of highly aggressive versus non-aggressive group members. Specifically, in order to compare the social adjustment of aggressive versus non-aggressive group members, average group scores for aggression and social adjustment were calculated based on the mean scores of all group members. For example, in the most extreme example, if the cluster of 24 individuals was placed in their most “nuclear” group, and in the process - removed from their “secondary” group, then the secondary group that originally contained 31 members, now only included 7 participants. Thus, not only might the number of individuals in the group change, but also the “group profile” scores based on the mean scores for aggression or social adjustment had the potential to change somewhat drastically. This was not perceived to reflect a realistic portrayal of the original group.

Thus, a criterion of 50% change in group membership was employed to determine any large changes in group membership once multiple members had been assigned to their most nuclear group. Thus, any groups that had lost more than 50% of their membership (due to elimination of multiple group members) were considered to have changed significantly and were eliminated from the analyses to follow ($n = 6$). Thus, the majority of the statistical analyses in the present section were based on the remaining 57 groups.

Similarity

Correlations Between Individual Scores and Peer Group Scores

Correlation coefficients were calculated to examine correspondence between *individual scores* on aggression and *peer-group scores* on aggression (e.g., average of

scores of other adolescents who were in that child's peer group; Kindermann, 1993).

Correlations were significant for overt ($r = .30, p < .001$) and relational aggression ($r = .24, p < .001$), indicating similarity among group members with respect to both overt and relational aggression.

Comparing Within Group to Between Group Variance

A MANOVA was conducted, using "peer groups" as the IV (57 levels) and adolescents' overt and relational scores as the DVs to test the hypothesis that peer group members were similar with respect to aggressive behavior. Thus, one would expect greater similarity among scores within as opposed to across groups (Kindermann, 1993). The overall MANOVA was significant, $F(112, 680) = 2.49, p < .001, \eta^2 = .29$. Results of univariate analyses indicated significant effects for both overt, $F(56, 340) = 2.26, p < .001, \eta^2 = .27$; and relational aggression, $F(56, 340) = 1.83, p < .001, \eta^2 = .23$. Thus, the results indicated that variance in aggression within peer groups was smaller than the variance between groups, suggesting similarity of overt and relational aggression within adolescents' peer groups.

Extremely Aggressive Groups

Identification of Extremely Aggressive and Non-Aggressive Groups

Mean groups scores on aggression were calculated for each peer group by averaging the overt and relational aggression scores of all members. Four different types of groups were identified based on the average level of aggression displayed by individuals within the groups: (1) overtly aggressive; (2) relationally aggressive; (3) overtly plus relationally aggressive; and (4) non-aggressive. Similar to the criterion that has been employed with aggressive individuals, a cut-off score of more than one standard

deviation above the mean for the construct was employed for the groups (e.g., Crick & Grotpeter, 1995). Thus, groups above this cut-off on the respective form of aggression (based on average group scores) were considered to be aggressive and those below that criterion were considered to be non-aggressive. Specifically, *Overtly Aggressive Groups* ($n = 9$) had an average group score of 1 SD above the mean on overt aggression (OA), but below 1 SD above the mean on relational aggression (RA). *Relationally Aggressive Groups* ($n = 6$) were identified based on an average group score 1 SD above the mean on RA, and a score below 1 SD above the mean on OA. *Overtly plus Relationally Aggressive Groups* ($n = 2$) were those with 1 SD above the mean on both OA and RA. Finally, *Non-Aggressive Groups* ($n = 46$) were identified based on an average group score less than 1 SD above the mean on both OA and RA.

Characteristics of Aggressive Groups

Gender. First, gender differences in the composition of group members were compared (see Table 4). Consistent with the hypotheses presented earlier, overtly aggressive groups were generally “all-male”, whereas all of the relationally aggressive groups were found to be “all-female”. In fact, the all-male groups were found to be either highly overtly aggressive or non-aggressive, whereas the all-female groups were found to be either highly relationally aggressive, overtly plus relationally aggressive, or non-aggressive. Finally, the mixed-gender groups were mostly non-aggressive.

Size. Results of a One-Way ANOVA to test for size differences between aggressive and non-aggressive boys’ groups was not significant, $F(1, 21) = 1.07, p = .31, \eta^2 = .05$. The One-Way ANOVA to test for size differences between aggressive and non-aggressive girls’ groups was also not significant, $F(1, 24) = 3.33, p = .08, \eta^2 = .12$.

Table 4.

Number of Male, Female, and Mixed Gender Groups Classified as Aggressive versus Non-aggressive.

Group Aggression Status	<i>N</i>	Group Gender Category		
		All Male (<i>n</i> = 23)	All Female (<i>n</i> = 26)	Mixed Gender (<i>n</i> = 14)
Overt	9	9	0	0
Relational	6	0	6	0
Overt & relational	2	0	1	1
Non-aggressive	46	14	19	13

Aggression status of group members. Aggressive groups were identified based on *average* aggression scores across all members of each group. Thus, it was possible that extremely aggressive “*individuals*” might actually belong to *groups* that, on average, were identified as being aggressive or non-aggressive. The number of extremely aggressive and non-aggressive individuals who were members of aggressive and non-aggressive groups was displayed in Table 5. On the whole, a large majority of non-aggressive individuals belonged to “non-aggressive groups”. However, a large number of relationally aggressive females and overtly aggressive males also belonged to non-aggressive groups, based on the criteria used to define aggressive groups in the present study (i.e., greater than one standard deviation above the mean on the respective aggression scale). Thus, a large number of extremely aggressive individuals actually belonged to groups, than on average were not found to be extremely aggressive. It is also important to note, however, that a large number of individuals who would generally be considered “non-aggressive” were members of highly aggressive groups.

Table 5.

Number of Extremely Aggressive versus Non-aggressive Males and Females who were Members of Aggressive and Non-aggressive Groups.

Individual Aggression Status	Group Aggression Status			
	Overt	Relational	Overt & Relational	Non-Aggressive
Females				
Overt	0	0	0	1
Relational	0	12	0	25^a
Overt & relational	0	4	4	2
Non-aggressive	0	25	3	143
Males				
Overt	14	0	2	24^b
Relational	0	0	0	1
Overt & relational	4	0	0	5
Non-aggressive	30	0	2	113

^aIt is also important to note that 17 of these relationally aggressive individuals were members of *non-aggressive mixed-gender* groups. Thus, only 8 of these relationally aggressive individuals were members of *non-aggressive all-female* groups.

^bSimilarly, 9 of these non-aggressive individuals were members of *non-aggressive mixed-gender* groups. Thus, only the remaining 15 overtly aggressive individuals were members of *non-aggressive all-male* groups.

Sociograms. To present a more descriptive “picture” of adolescents’ peer groups, sociograms were drawn for some of the groups. Given that the focus of much of the analyses in this section was on single-gender groups, all-male and all-female aggressive and non-aggressive groups were depicted in Appendixes at the end of the paper.

Relationally Aggressive Female Groups were shown in Appendixes L1 – L6, *Non-Aggressive Female Groups* in Appendixes M1 – M19, *Overtly Aggressive Male Groups* in Appendixes N1 – N9, and *Non-Aggressive Male Groups* in Appendixes O1 – O14. In addition to the aggression status of the group, extremely aggressive and non-aggressive individuals were depicted and their status within the group was listed. Also shown in the sociograms were reciprocated and unreciprocated friendship nominations made within the group.

Sociograms were presented to provide additional information on the patterns of relationships and status of group members that readers might find of interest and might want to investigate by examining the sociograms in more detail at their leisure. It is beyond the scope of this study to describe every detail of these sociograms. However, a few brief comments were made regarding the pattern of associations between extremely aggressive individuals. First, extremely aggressive children generally (but not always!) tended to associate together in peer groups, with the actual number of aggressive individuals in group ranging from 0 to 5 for the sociograms presented here. Second the percentage of extremely aggressive individuals (out of all those in the group) ranged from 0 to 100% (i.e., from no aggressive members to all members of the group being extremely aggressive). Thus, these sociograms nicely depict the wide range of different

types of groups with respect to size, composition of aggressive members, status, and friendship patterns.

Exclusivity. The percentage of reciprocal friends within versus outside of peer groups reported by members of aggressive versus non-aggressive peer groups was examined to compare the degree of “exclusivity” in aggressive versus non-aggressive groups. Due to the fact that relationally aggressive groups were generally female (and conversely that overtly aggressive groups were generally male), these analyses were conducted separately for males and females. Results of an ANOVA comparing relationally aggressive girls’ groups to non-aggressive groups was not significant, $F(1, 21) = .62, p = .44, \eta^2 = .03$. Results of a second ANOVA comparing overtly aggressive boys’ groups to non-aggressive boys’ groups was not significant, $F(1, 16) = .93, p = .35, \eta^2 = .06$.

Density. The density of these groups was examined by determining the percentage of unlimited reciprocated friendships within aggressive groups. Thus, for each group a score was calculated based on the total number of reciprocated friendships within the group divided by the total number of reciprocal friendships possible within the group. Results of an ANOVA comparing relationally aggressive girls’ groups to non-aggressive girls’ groups was not significant, $F(1, 23) = .46, p = .50, \eta^2 = .02$. Results of a second ANOVA comparing overtly aggressive boys’ groups to non-aggressive boys’ groups was not significant, $F(1, 19) = .02, p = .90, \eta^2 = .00$.

Social Adjustment of Peer Group Members

Intercorrelations between aggression scores and social psychological adjustment measures based on average group scores are displayed in Table 6. In general, overt

aggression at the group level was significantly associated, on average, with less alienation from peers as reported by group members. However, high levels of relational aggression at the group level were correlated with less loneliness, less overt and relational victimization, and greater trust and communication in representations of attachment to peers as reported by group members.

Due to the fact that relationally aggressive groups were all-female groups, and overtly aggressive groups were all-male groups, analyses were performed separately for girls and boys.¹² Given that the number of groups included in the analyses reported below was quite small, a significance level of $p = .10$ was adopted in order to increase power. It was also possible that adolescents' adjustment might vary as a function of their centrality within these groups. However, an examination of the structure of children's peer groups indicated that a large number of missing data would be evident if we included centrality as a variable in the analysis. Specifically, quite a significant number of groups included only nuclear members (with no secondary or peripheral members). It was deemed inappropriate to replace or "estimate" missing data due to the fact that in some cases this would involve the replacement of data for almost half of the groups in any one condition (e.g., 3 of 6 relationally aggressive girls groups). Thus, the analyses were conducted simply comparing aggressive and non-aggressive groups based on the average scores of all group members, regardless of centrality.

¹² The numbers of physically plus relationally aggressive groups and mixed gender groups were not large enough to include in the present analyses.

Table 6.

Intercorrelations Between Aggression and Outcome Measures Based on Group Scores (N = 57 Groups).

	1.	2.	3.	4.	5.	6.	7.	8.
1. Overt Aggression	---	.18	-.23	.20	-.08	-.08	-.20	-.30*
2. Relational Aggression		---	-.46***	-.42***	-.27*	.28*	.53***	-.12
3. Loneliness			---	.46***	.72***	-.60***	-.54***	.28*
4. Overt Victimization				---	.56***	-.46***	-.52***	.16
5. Relational Victimization					---	-.42***	-.31*	.40**
6. IPPA ^a : Trust						---	.80***	-.34**
7. IPPA ^a : Communication							---	-.06
8. IPPA ^a : Alienation								---

Note. Higher scores reflect greater overt and relational aggression, loneliness, overt and relational victimization, trust, communication, and alienation.

^aIPPA refers to the Inventory of Parent and Peer Attachment

* $p < .05$ ** $p < .01$ *** $p < .001$

Female Groups. An ANOVA was conducted with loneliness as the DV and group aggression status (relationally aggressive vs. non-aggressive) as the IV. Results were significant, $F(1, 23) = 3.36, p < .10, \eta^2 = .13$, indicating that relationally aggressive group members reported less loneliness than non-aggressive group members (see Table 7 for Means and SDs for social adjustment for female and male groups).

A MANOVA was conducted to determine whether group members differed with respect to reported victimization. Thus, overt and relational victimization served as the DVs and group aggression status as the IV. Results of the multivariate test was significant, $F(2, 22) = 2.80, p < .10, \eta^2 = .20$. Only the univariate test for overt victimization was significant, $F(1, 23) = 5.86, p < .05, \eta^2 = .20$, indicating that members of relationally aggressive groups reported less overt victimization than members of non-aggressive female groups.

A final MANOVA was conducted to determine whether group members differed in terms of reported perceptions of attachment to peers. Thus, the three DVs were trust, communication, and alienation, and the IV was group aggression status. Results of the overall MANOVA was significant, $F(3, 21) = 2.60, p < .10, \eta^2 = .27$. Only the univariate test¹³ for communication was significant, $F(1, 23) = 6.48, p < .05, \eta^2 = .22$, indicating that members of relationally aggressive groups reported greater communication than members of non-aggressive female groups.

¹³ All of the ANOVAs for males and females in this section were also repeated using the second variable in which adolescents were assigned to their secondary, as opposed to their most nuclear group. All of the results were essentially similar, with one exception. One additional significant finding was observed when analyses were conducted using the secondary variable. Specifically, the univariate test for the peer attachment sub-scale of trust was significant, indicating that relationally aggressive females also reported greater trust in their relationships than non-aggressive females.

Male Groups. An ANOVA was conducted with loneliness as the DV and group aggression centrality (overtly aggressive vs. non-aggressive) as the IV. Results of the ANOVA was significant, $F(1, 19) = 3.03, p < .10, \eta^2 = .14$, indicating that overtly aggressive group members reported less loneliness than non-aggressive group members¹⁴.

A MANOVA was conducted to determine whether group members differed with respect to reported victimization. Thus, overt and relational victimization served as the DVs and group aggression centrality as the IV. Results of the multivariate test was not significant, $F(2, 18) = .44, p = .65, \eta^2 = .05$.

A final MANOVA was conducted to determine whether group members differed in terms of reported perceptions of attachment to peers. Thus, the three DVs were trust, communication, and alienation, and the IV was group aggression centrality. Results of the overall multivariate test was not significant, $F(3, 17) = .36, p = .78, \eta^2 = .06$.

Individual and Relational Variables: Predicting Social Adjustment

The final objective of this study was to determine how both individual behavioral characteristics (e.g., aggression) and aspects of adolescents' relationships with others (e.g., aggression exhibited by one's peer group members) might be related to their social adjustment (e.g., victimization, loneliness, attachment). First, intercorrelations between aggression and social adjustment variables based on individual scores are presented in Table 8. A comparison of these correlations (for individuals) with those based on average peer group scores presented earlier (see Table 6) indicates a fairly similar pattern of results, although there were a larger number of significant correlations based on a group level analyses. For individuals, overt aggression was not associated with any of the social

¹⁴ The results of the same analyses conducted when multiple members were assigned to their secondary groups, however, did not support these results. Specifically, the results of the ANOVA were not significant and the proportion of variance accounted for was only 8%.

adjustment indices. However, relational aggression was negatively correlated with loneliness and overt victimization, and positively correlated with communication in representations of attachment relationships with peers.

Table 7.

Means (SDs) for Adolescent Social Psychological Adjustment Variables by Group
Aggression Status for Males and Females.

Adjustment Variable	Group Aggression Centrality			
	Female		Male	
	Relational	Non-Aggressive	Overt	Non-Aggressive
Loneliness	1.54 (.42)	1.92 (.45)	1.66 (.41)	1.97 (.38)
Victimization				
Overt	1.29 (.15)	1.59 (.28)	1.79 (.41)	1.82 (.38)
Relational	1.70 (.32)	1.86 (.40)	1.76 (.37)	1.89 (.30)
Peer Attachment				
Trust	4.40 (.46)	4.24 (.28)	4.10 (.56)	3.98 (.35)
Communication	4.10 (.31)	3.58 (.46)	3.04 (.73)	2.78 (.50)
Alienation	2.16 (.29)	2.20 (.36)	1.97 (.52)	2.01 (.27)

Table 8.

Intercorrelations Between Aggression and Outcome Measures Based on Individual Scores.

	1.	2.	3.	4.	5.	6.	7.	8.
1. Overt Aggression	---	.43***	-.07	.07	-.02	-.04	-.06	-.09
2. Relational Aggression		---	-.23***	-.14**	-.01	.11	.26***	-.04
3. Loneliness			---	.37***	.61***	-.52***	-.41***	.38***
4. Overt Victimization				---	.52***	-.31***	-.25***	.25
5. Relational Victimization					---	-.36***	-.16***	.41***
6. IPPA ^a : Trust						---	.67***	-.45***
7. IPPA ^a : Communication							---	-.16***
8. IPPA ^a : Alienation								---

Note. Higher scores reflect greater overt and relational aggression, loneliness, overt and relational victimization, trust,

communication, and alienation. In order to control for the large number of correlations, an alpha level of .01 was adopted to determine significance.

^aIPPA refers to the Inventory of Parent and Peer Attachment

** $p < .01$ *** $p < .001$

Contributions of Individual versus Group Characteristics

A hierarchical regression analysis was used to predict social adjustment based on characteristics of the individual and the relationship. Thus, a total of 4 regressions were conducted for the social adjustment variables (loneliness, overt victimization, relational victimization, peer attachment). The overall score on attachment, rather than the three subscale scores (trust, communication, alienation) was used for the following regression analyses in order to reduce the total number of regressions that were run. In order to control for Type I errors, an alpha level of .01 was adopted to determine significant *F*-change statistics and the significance of the unstandardized Beta's for individual predictors.

In order to control for possible gender differences in the outcome measures, gender was entered on the first step. Individual behavioral characteristics were entered on the second step (e.g., relational aggression score; overt aggression score). Characteristics of adolescents' peer relationships were entered on the third step (e.g., average relational aggression score of peer group members excluding the individual in question; average overt aggression score of peer group members excluding the individual in question). Interactions between behavioral characteristics at the Individual and Group level were entered on the fourth step (e.g., relational aggression of the individual * relational aggression of the peer group; overt aggression of the individual * overt aggression of the peer group). However, none of the interaction terms were significant.¹⁵ See Table 9 for β s and R^2 change statistics.

¹⁵The 2-way interactions between gender * aggression of the individual and gender * aggression of peer group were also entered on the 5th step, and 3-way interactions between gender * aggression of individual *

Gender significantly predicted overt victimization, $\Delta F(1, 392) = 24.70, p < .001$; and attachment, $\Delta F(1, 388) = 34.89, p < .001$. Specifically, boys reported more overt victimization and poorer attachment in their relationships than girls. Behavioral characteristics at the levels of the individual and the group, however, did not make additional contributions to the prediction of victimization or attachment.

For *loneliness*, “individual aggression” (Step 2) accounted for an additional 5% of the variance, $\Delta F(2, 390) = 10.24, p < .001$. Although both individual overt aggression and individual relational aggression were entered on Step 2, only *relational aggression* made a unique contribution to the prediction of loneliness, such that greater relational aggression of the individual was associated with less self-reported loneliness. However, “group aggression” (Step 3) also contributed an additional 5% of the variance in the prediction of loneliness, $\Delta F(2, 388) = 9.76, p < .001$, above that which could be accounted for by individual aggression alone. Again, although both overt and relational aggression of the group were entered at this step, only *relational aggression* made a unique contribution to the prediction of loneliness, such that greater relational aggression within the group was associated with less loneliness.

aggression of peer group were entered on the 6th step. The additional proportion of variance accounted for by these interactions with gender was not significant (at an alpha level of .01) at steps 4, 5, or 6 for any of the outcome measures assessed.

Table 9.

Results of Hierarchical Multiple Regression Analyses Predicting Loneliness, Victimization, and Attachment from Gender, Aggression of the Individual, and Aggression of the Group.

Each Step	β s Indicating Unique Contributions of Variables at			
	Loneliness Peer Attachment	Overt Victimization	Relational Victimization	
Step 1: Gender ^a	.06	.33***	-.06	-.36***
Step 2: Individual Level				
Overt Aggression	.01	.00	-.01	.01
Relational Aggression	-.14***	-.06	.01	.08
Step 3: Group Level				
Overt Aggression	-.04	.07	-.02	-.01
Relational Aggression	-.12***	-.10	-.08	.10
R^2 for Step 1: Gender	.00	.06***	.00	.08***
ΔR^2 for Step 2: Individual	.05***	.01	.00	.02
ΔR^2 for Step 3: Group	.05***	.02	.02	.02

^a1 = female, 2 = male

** $p < .01$ *** $p < .001$

Discussion

The present study made a significant contribution to the study of relational aggression by focusing on a relatively understudied age group (i.e., adolescence), and by studying aggression and its correlates at different levels of analysis (e.g., individual, peer group). Results of the present study add to the literature, not only by providing information regarding the characteristics of the peer groups of relationally aggressive adolescents, but also by investigating the *social adjustment* of children who belonged to highly relationally aggressive groups. In support of hypotheses presented earlier, results indicated that group members were similar with respect to both overt and relational aggression and that relationally aggressive individuals and groups were highly central in the network. Contrary to expectations, however, membership in highly relationally aggressive groups was generally associated with better, rather than poorer, self-reports of social adjustment in several domains. However, after accounting for the degree of relational aggression displayed by individuals, the level of relational aggression within the group contributed only to the prediction of loneliness. Overall, results provided support for the utility of a multifactor, multilevel model for understanding aggressive behavior. Results are discussed below with respect to possible mechanisms of influence, implications for relationally aggressive adolescents and their peers, and directions for future research based on the findings of the present study and the propositions of Cairns and Cairns' (1991) model.

Characteristics of Aggressive Peer Groups

Consistent with hypotheses discussed previously, results indicated that all extremely relationally aggressive groups consisted of females, whereas all extremely

overtly aggressive groups consisted of males. Thus, these findings are consistent with the those of other researchers (e.g., Crick & Grotpeter, 1995; Rys & Bear, 1997) who have indicated that females were more likely than males to be extremely relationally aggressive, and males more likely than females to be extremely overtly aggressive. Thus, these findings support Crick & Grotpeter's (1995) proposition that the forms of aggression employed by females would be consistent with their social concerns (e.g., focus on relational issues during social interaction).

Although relationally aggressive females did not appear to be any more central than other females *within* their own peer groups, their groups, as a whole, tended to be perceived as more central than other female groups. In fact, all but four relationally aggressive females belonged to groups that were "nuclear" within the network, and five of the six extremely relationally aggressive peer groups were considered to be nuclear groups based on peer nominations. In contrast, overtly aggressive males and their groups were not found to be any more central or salient within the peer network than other male groups. It is also important to note that none of the isolates identified in the sample were relationally aggressive (although one of the isolates was identified as being extremely physically aggressive).

The results of the present study were consistent with previous studies that indicated that relational or social forms of aggression were associated with moderate to high levels of centrality or popularity in the peer network (Gest et al., 2001; Lease et al., 2002; Xie et al., 2002). Gest and colleagues suggested that network centrality might be an index of social dominance based on either prosocial or antisocial leadership styles. In addition, Lease and colleagues reported that perceived popularity was associated being

socially visible and more dominant within the social network, as well as with the use of more exclusionary behaviors (e.g., relational aggressive) than was sociometric popularity. Thus, relationally aggressive children may be perceived as popular by their peers, and perhaps wield a certain amount of power or influence among the peer group. In summary, then, the findings obtained in the present study seem to be consistent with the very nature of relationally aggressive actions. In other words, it would appear difficult to engage in relationally aggressive behaviors if one were not at least moderately connected to a network of individuals in order to have the necessary degree of power to “back up” these threats and the necessary network of peers to support one’s actions.

The findings of the present study may appear inconsistent with findings suggesting that relationally aggressive children are also more likely to be rejected by their peers (based on sociometric nominations, Crick & Grotpeter, 1995; Crick, 1996; Rys & Bear, 1997). In fact, one might wonder how children who are rejected by their peers might be at all successful in carrying out their relationally aggressive threats or manipulating the relationships of their peers. Interestingly, however, Gest and colleagues (2001) indicated that both network centrality and sociometric status (i.e., liked-least nominations) contributed uniquely to the prediction of aggression, such that *higher network centrality* as well as more *liked-least nominations* were both associated with greater peer-nominations for aggressive and disruptive behaviors.

If one interprets these findings within the context of Cairns and Cairns’ model, however, these seemingly contradictory findings might be more easily reconciled. More specifically, Cairns and Cairns (1991) have suggested that both descriptions could be accurate, but might simply represent results based on different levels of analysis.

“Accordingly, proposals which focus on rejection and alienation refer to the *individual* level of analysis, and to enduring dispositions of the person. In contrast, proposals which focus on social support refer to a *network* level of analysis, and to the dynamics of social regulation and social control” (Cairns & Cairns, 1991, p. 265). Thus, although aggressive children and adolescents may be disliked or rejected by a significant number of their peers, they might also find and forge relationships with other individuals who are similar to them or who, at the very least, support their behaviors. Within the context of relationships with others who support them, relationally aggressive individuals might have the necessary level of power or influence to manipulate their social networks in whatever manner they might wish to.

Support for the hypothesis that relationally aggressive individuals would be likely to associate with one another was also found. Overall, results indicated mild to moderate levels of similarity in the form and level of aggression expressed by members of the same group. Therefore, these findings were consistent with the propositions of Cairns and Cairns’ model. More specifically, the principles of holism and constraint would suggest similarity with respect to aggression across different levels of the model. However, it was also important to note that, even though there was a moderate degree of similarity among group members, there was still quite a significant degree of variability as well. For example, it was interesting that groups identified as highly relationally aggressive (based on the average aggression scores of all members) were generally comprised of one to five relationally aggressive (or relationally plus overtly aggressive) individuals and several additional “non-aggressive” individuals. Moreover, not all relationally aggressive

individuals were observed to be members of highly relationally aggressive groups.

Overtly aggressive males tended to follow a generally similar pattern.

Although there was similarity among group members, there were differences as well. Somewhat similar results were reported by Farmer, Leung, Pearl, Rodkin, Cadwallader, and Acker (2002). These researchers investigated the relationships between aggressive and non-aggressive boys and girls in social groups. They reported that there was evidence both to suggest that deviant or aggressive peers affiliated with one another (i.e., the “deviant peer group hypothesis”), but also that a number of groups where comprised of a large numbers of highly aggressive individuals as well as a large number of non-aggressive individuals. For example, Farmer and colleagues reported that popular aggressive boys tended to associate with one another, but also with other non-aggressive peers who were similar to them on other characteristics (e.g., popularity, athletic ability).

Farmer and colleagues (2002) suggested that these findings were consistent with a social interactional framework in which individuals who affiliated with one another tended to support each other’s behavior. Consistent with this framework, there were two processes that might influence the manner in which social interactions were organized. One of these processes is behavioral similarity (e.g., group members may engage in reciprocal interchanges promoting behavioral similarities among group members). However, an alternate process that may work to support group affiliation is complementarity (i.e., two individuals are different, but one’s actions complement or are necessary for the other). Thus, in line with the suggestion offered by Farmer et al. (2002; see also Craig & Pepler, 1997), it would appear important to investigate the social roles of aggressive and non-aggressive individuals, with particular focus on the role of non-

aggressive peers in “promoting and reinforcing the agonistic behavior of their aggressive peers” (Farmer et al., 2002, p. 619).

Relational Aggression: Adaptive or Maladaptive?

Overall, general support for many of the expectations regarding the more “structural” aspects of relationally aggressive adolescents’ networks was obtained in the present study. However, findings regarding the association between relational aggression and social adjustment were somewhat contrary to expectations. In general, the results of the present study indicated that relational aggression was associated with some positive perceptions of relationships. Specifically, females in highly relationally aggressive groups reported less loneliness, less overt victimization, and better communication in the context of attachment relationships with peers. This finding might seem contrary to most of the things that we have learned about relational aggression from research conducted to date. However, it is also important to note that there have been previous suggestions that relational aggression may be associated with various social competencies including perceived popularity (Lease et al., 2002), social intelligence (Bjorkqvist, Osterman, Kaukiainen, 2000; Kaukiainen et al., 1999), and intimacy in friendships (Grotmeter & Crick, 1996).

It is possible that the use of such strategies affords relationally aggressive individuals and their associates some benefits in the social realm, perhaps particularly in adolescence. The results of the present study indicated that members of highly relationally aggressive peer groups experienced higher levels of communication in their close relationships than members of non-aggressive groups. In addition, Grotmeter and Crick (1996) reported that relationally aggressive individuals and their friends reported

higher levels of intimacy in their relationships. Thus, communication in the context of one's close relationships (i.e., talking about intimate details of one's life, sharing feelings and secrets) might be one way to promote intimacy within highly aggressive groups. Thus, it is possible that relationally aggressive individuals and their close associates might experience and desire greater closeness, communication, and to a degree, greater enmeshment in their relationships as well.

Relationally aggressive individuals and groups also tended to be quite nuclear and salient within the network, and accordingly it is possible that others may be envious of their status and perhaps even wish to be members of these groups. Being connected with such a salient group where intimacy, closeness, and communication are promoted could result in feelings of belongingness, such that members could quite logically feel less lonely than members of less salient or less intimate groups. Along similar lines, if relationally aggressive individuals and groups are perceived to be quite salient and popular, this popularity may serve to protect at least the majority of group members from victimization from other individuals or groups that are less central or less powerful. Specifically, other individuals may fear to act aggressively towards them, either because they lack the power to make such an attack effectively or because of the fear of reprisal from more central, more powerful individuals. Thus it is possible that the popularity or status afforded to relationally aggressive groups within the network might be one of the mechanisms linking relational aggression in the context of adolescents' peer groups with some of these outcomes (e.g., less victimization).

So, in answer to the question of whether relational aggression might promote certain positive perceptions about one's relationships in adolescence, the answer appears

to be “yes”. Thus, the majority of individuals within highly relationally aggressive peer groups might be likely to feel quite positively about their relationships. However, there is a second question that remains to be answered, and that is whether relational aggression might also be associated with maladaptive outcomes, either at other developmental periods, or with respect to other adjustment indices.

First, it should be noted that the focus of the present study was on adolescents’ perceptions of their close relationships (i.e., quality of attachments, feelings of loneliness, and whether they felt that they had been victimized by their peers). However, these reflect only a few aspects of adolescents’ feelings and experiences and there are other factors that could potentially be associated with the use of relational aggression as a common strategy to control and manipulate relationships. For example, it is possible that even though relationally aggressive individuals may perceive their relationships to be positive, they might also experience some difficulties in the mental health arena. For example, Werner and Crick (1999) reported that the use of relationally aggressive actions among undergraduate students was associated with antisocial personality features, borderline personality features, and bulimic symptoms.

One additional comment should be made with respect to the association between secure attachments and adjustment. Raja, McGee, and Stanton (1992) investigated the association between perceived attachments to parents and peers and adolescent mental health. Although higher (more secure) attachment, particularly to parents, was associated with better mental health in most cases, one exception was reported. Specifically adolescents who reported low attachment to parents, but high attachment to peers, also reported the highest scores on depression. These researchers have suggested that

depression may be “more likely under conditions of high peer attachments when such attachments are under threat” (p. 484).

These results reflect the findings of only one study, and there were some methodological concerns with the study (particularly the fact that adolescents completed only a modified, shortened version of the IPPA; also note that Liable et al., 2000, did not replicate these findings). However, this finding is still worthy of consideration here, particularly since the dynamics of adolescents’ peer relations are such that close friendships and group inclusion may be threatened quite frequently given the nature of exclusionary tactics often employed within the peer network. Thus, it seems likely that feelings of closeness and open communication in the context of an extremely relationally aggressive group of peers could eventually lead to feelings of depression if these feelings of closeness and their relationships were threatened.

A somewhat different view has been voiced by Xie and colleagues (2002) who have suggested that social and relational forms of aggression may be normative in development. They have argued that it is not physical aggression itself that predicts developmental maladjustment, but that it is the at-risk configuration within which physical aggression is embedded (e.g., poor academic performance, dropping out of school) that predicts future maladjustment. Xie and colleagues reported that social and relational aggression were not related to risk factors in these same domains, and therefore might not be associated with future adjustment problems. However, some researchers have reported that relational aggression was associated with poor adjustment in several domains in early adulthood (e.g., attachment in romantic relationships, Linder et al., 2002; symptoms of poor mental health, Werner & Crick, 1999). Thus, although relational

forms of aggression may be exhibited fairly commonly, and these forms of aggression may be associated with some advantages in the social realm, it also seems unrealistic to suggest that relationally aggressive actions are a common form of interaction that appear to have no long-term consequences for those who use them.

In fact, it is possible that relational aggression may be more strongly linked with internalizing than externalizing difficulties. Specifically, it does not seem appropriate to suggest that since relational aggression is not associated with the same factors that put overtly aggressive children at risk for future maladjustment (e.g., dropping out of school), that relationally aggressive individuals are therefore not at risk. In fact the risks for relationally aggressive individuals may lie not in externalizing forms of behavior, but in the patterns that they learn within their relationships. Given the results of the present study, it may seem somewhat ironic to suggest that relationally aggressive individuals might experience difficulties within their relationships. However, such a suggestion may make sense if one considers relational aggression and relationships within a developmental framework.

Specifically, the results of studies conducted in childhood have suggested that relationally aggressive children may be more disliked by their peers (e.g., Crick, 1996; Crick & Grotpeter, 1995; Rys & Bear, 1997) but that relational aggression was also associated with popularity (Lease et al., 2002). Results of the present study indicated that relationally aggressive individuals were able to forge relationships with others, and that these groups of adolescents were quite salient among the network (although it is possible that they may still be disliked by others in their peer group as a whole). Based perhaps on the success of these relationships, members of relationally aggressive groups perceived

their relationships to be high in communication, and also reported less victimization and less loneliness.

However, it is unclear whether relationally aggressive adolescents would be quite as successful at forging relationships and controlling social interactions in other time periods or in other places. For example, early adolescence is a time period where one's peer group may be fairly limited (i.e., mostly to other adolescents in one's school at similar ages), and where peer groups, belonging, and conformity are relatively important concepts. Thus, individuals with the social intelligence and the desire to control and direct other's peer relationships to their liking may flourish in such an environment. However, as older adolescents begin to strive for greater independence and as adults move into new environments (university, the work-place) where there may be many more opportunities to form relationships with different people and in different contexts (e.g., romantic relationships), it is unclear whether relationally aggressive individuals would be able to maintain the same power and control over the relationships of others. Thus, one might wonder how individuals who might be quite used to being able to control and manipulate others to get what they want might react to a situation in which others don't respond in the manner than they might expect. This could potentially explain the findings reported by Werner and Crick (1999) with respect to the symptoms of poor mental health reported by relationally aggressive individuals.

Thus, the question may not be only whether relational aggression is associated with better or worse adjustment, but whether relational aggression may be associated with more positive aspects of adjustment at certain developmental stages than others. Given the changing nature of children's relationships over time, including a focus on

dyadic relationships in childhood, groups or networks in adolescence, and an increasing focus to romantic relationships in late adolescence and early adulthood, the correlates of relational aggression (which involves the manipulation of relationships!) have the potential to change somewhat drastically over time.

So, a final question we might ask is, when it comes to relational aggression, is adolescence a special time? Do, the characteristics of this life stage (i.e., the relatively high importance placed on peer relationships, the desire to “belong”/need for group inclusion/acceptance) provide relationally aggressive individuals with the perfect environment with which to utilize their skills and flourish under the umbrella of the awesome power they wield? Based on the results of the present study, it may be possible to answer a tentative “yes”, since relational aggression was associated primarily with more positive adjustment among early adolescents. At this point the mechanisms through which these positive outcomes may be achieved is not clearly understood, although it is possible that status among one’s peers may play somewhat of a role.

However, I would also caution against making any broad statements regarding the potential benefits/difficulties associated with the use of relationally aggressive behaviors in adolescence as of yet, given that the present study focused only on a few adjustment indices (loneliness, victimization, attachment) and we know little about other aspects of adjustment at this age. Furthermore, the focus of the present study was on aggression, but other behavioral characteristics (e.g., prosocial behaviors, leadership capabilities, shyness/withdrawal) have the potential to influence children’s social adjustment as well and may well contribute additional information or may interact with the use of aggressive behaviors to predict social adjustment in some as yet undiscovered manner (e.g., see

Crick 1996, for a discussion of the role of prosocial behaviors in the prediction of adolescents' social adjustment).

In conclusion, relational aggression does appear to be associated with some advantages in the social realm, at least in adolescence. However, given the fact that relational aggression has been found to be associated with difficulties related to mental health and relationships in adulthood, there is still some cause for concern with regards to the adjustment of relationally aggressive individuals and groups.

One final comment should also be made regarding the self-reported adjustment of groups of highly overtly aggressive males. In general, members of overtly aggressive groups appeared to be quite similar to members of non-aggressive peer groups with respect to their self-reported adjustment, and in fact, actually reported less loneliness than members of non-aggressive male groups. Thus, researchers may wish to further examine the reasons for the relative lack of social adjustment difficulties reported by overtly aggressive males in the present study as well.

Social Adjustment: A Function of the Individual or Group Characteristics

Overall, results indicated that extremely relationally aggressive female groups reported greater communication in attachment relationships with peers, less overt victimization, and less loneliness than the less aggressive female groups. However, given that there was a moderate degree of similarity between the degree of relational aggression exhibited by group members, it was difficult to discern whether social adjustment might be a function of individual level of aggression or the degree to which an adolescent was situated in an aggressive environment. After controlling for effects due to gender and the degree of aggression displayed by the individual, the degree of aggression exhibited by

group members was not found to be associated with the individuals' level of self-reported victimization or security of attachment.

Findings related to loneliness were somewhat different, however. Specifically, individual level of aggression was associated with less loneliness, but group level of aggression was also associated with less loneliness, even after controlling for the level of aggression displayed by the individual. Furthermore, only *relational aggression* (whether assessed at the level of the individual or the group), but not overt aggression, contributed uniquely to the prediction of adolescents' self-reported loneliness, providing support for the hypothesis that relational aggression would be more strongly associated with the adjustment measures selected for the present study.

Once again, results seem to indicate that relational aggression affords adolescents' with some advantages in the social realm – specifically with respect to loneliness. In addition, the effects of being aggressive oneself and belonging to an aggressive group appeared to be somewhat additive. Specifically, there was no interaction between aggression at the individual and group levels in the prediction of loneliness. Thus, belonging to a group that was relatively more relationally aggressive was associated with less loneliness, whether one was aggressive oneself or not. These findings are consistent with one might expect based on the propositions of Cairns and Cairns model, in that the influence of factors at different levels (i.e., individual, network) were somewhat similar (both were associated with less loneliness), but each provided additional information in this regard.

These findings seem to indicate some adaptive outcomes for individuals belonging to relationally aggressive peer networks even if these individuals would not

generally have been identified as being aggressive themselves. The mechanisms through which this might occur are not entirely clear, although one might speculate that members might experience an increase in salience or popularity upon joining a highly salient relationally aggressive peer group. In addition, the nature of relationally aggressive actions, like for example, group exclusion may actually promote feelings of group intimacy and belongingness. In fact, Owens, Slee, and Shute (2001) conducted focus groups with female adolescent girls' to determine the reasons they reported for engaging in indirect aggressive actions. According to Owens and colleagues, "The girls reported that being included in the group very often meant excluding others. The bitching, gossiping, or story-telling serves to bind the friendship group together and create intimacy for those who are *in* as against those who are *out*" (p.225). Thus, it is possible that knowing that others might wish to be part of the group but only you have been selected might enhance adolescents' positive feelings about the group, potentially leading to less reported loneliness as well.

Interestingly, no support was found for the hypothesis that relationally aggressive groups might be more exclusive than non-aggressive groups (based on an operational definition of reciprocal friendship within versus outside of the peer group). However, it is possible that group exclusivity might be more clearly represented by assessing *boundary maintenance*. Specifically, Adler and Adler (1995) suggested that it is the degree to which group members accept (or reject) new individuals into the group that reinforces group exclusivity. Thus, in future, it might be more relevant to assess the proportion of *bids for entry* into the group that are *accepted* or *rejected* as opposed to the friendships one might hold within other social group or contexts. Thus, the mechanisms through

which relational aggression influences adolescents' feelings of loneliness will need to be explored further, but it appears that some factor related to the social functions of relational aggression (e.g., status, popularity, group intimacy) are likely to be involved.

In summary, the results of the present study highlight the relevance of examining the functions and outcomes of relational aggression within the context of adolescents' social relationships. As Xie and colleagues (2002) recently stated, "...developmental properties of different aggressive behaviors can be analyzed simultaneously on two levels: interpersonal interaction and individual differences. Each level of analyses yields important information on behavioral individual development. Studying individual differences without examining the operation of a specific behavior in social interactions will severely limit our understanding of the adaptive and developmental functions of the behavior" (p.221).

Limitations

Overall, the present study made a significant contribution to the study of relational aggression by focusing on a time period that has been relatively understudied in the past (although seems quite relevant to the study of relational aggression) and by taking more of a "relationships" as opposed to an individual focus by studying relational aggression in the context of children's peer groups. Thus, a major strength of the present study was that it was one of the first to investigate the social networks of relationally aggressive adolescents (see also Xie et al., 2002), and the first study located investigating the social adjustment of children who belonged to highly relationally aggressive groups. However, there were several limitations of the present study that will be discussed briefly in this section.

First, although the SCM questions have generally been completed without the use of class lists (i.e., using a free-recall procedure), students used class name-ID number lists to complete the SCM question in the present study. Class lists were employed for the following reasons. One reason was that the use of peer nominations has raised some ethical concerns, including the fact that some children could possibly find out that they had been nominated and could become upset. One of the ways that adolescents could potentially find out about others' nominations was by accidentally or intentionally observing another students' questionnaire during the group administration session. Although other steps were also taken to avoid this possibility, it was believed that the use of ID numbers as opposed to names would make it even more difficult for students to observe one another's answers, and might also make students feel more comfortable about the whole nomination procedure.¹⁶

The second reason was somewhat more practical in nature. Specifically, when free recall nominations are employed, for confidentiality reasons, students are generally asked to write only the students' first name and sometimes the first initial of the last name. However, students often forget (or do not know) the first initial of children's last names. This was a particular concern for the present study, since students were allowed to nominate across grade level for the SCM questions and one of the schools was extremely large (i.e., 10 participating classes). Thus, there were a lot of students with the same first name. In this situation, the use of a free-recall procedure could result in a lot of missing data. Thus, based primarily on the first two reasons, class lists (rather than free-recall methods) were utilized in the present study.

¹⁶ In fact, students were questioned about the use of ID numbers during part of a pilot study. Many of the participants reported that the use of ID numbers rather than names made them feel a lot more comfortable with the study.

It does not seem likely that the use of class lists necessarily invalidated any of the findings reported in this study. However, the following effects may have resulted from the use of this procedure. First, it is possible that groups were somewhat larger and more inclusive than would have been the case had a free-recall method been employed. For example, it is possible that a student who might have been somewhat on the borderline between being a peripheral group member and an isolate might have been more likely, in the present study, to be considered to be peripheral group member. This would typically have increased the number of group members and decreased the number of isolates. It is also possible that the number of students belonging to multiple groups might have been larger in the present study, as children might have been more likely to report individuals with even peripheral ties to a secondary group as being a member of a second group if their memory was triggered by seeing the name.

With respect to this issue, one of the SCM program authors suggested that the use of class lists might have some effects such as larger than usual groups, but also indicated that he didn't think it should be too much of a problem for the computer program (T. Kindermann, personal communication, January, 2003). He also suggested that the distinction between nuclear, secondary, and peripheral members might even be more trustworthy in this case since children were able to choose from among all children's names, rather than having to recall them from memory in which highly salient individuals might be chosen the most, even if it was just something that made them noticeable recently (e.g., class clown's, bullies, person who conducted survey in school last week).

Thus, it is possible that the overall group size may have been somewhat larger than would have been expected, and it is also possible that the degree of variability with

respect to the centrality indices could have been somewhat reduced. This could have made it more difficult to obtain significant findings due to centrality (although – note that one significant effect was observed related to relational aggression and centrality, indicating that the variability in students' scores was not completely diminished). However, this is something that should be investigated and replicated in future studies where investigators may wish to employ a free-recall method. In fact, it might be interesting to attempt to compare results obtained using class lists versus free-recall to determine whether recognition versus recall methodologies do in fact affect centrality indices to any great extent.

An additional limitation of the present study included the fact that only one data collection period was involved, therefore not enabling any longitudinal investigations or suggestions of causality as opposed to correlation. Although it seems somewhat more logical to think about relational aggression as being the cause of these various adjustment outcomes, the results of the present study, in which both relational aggression and adjustment were assessed concurrently, in reality, only imply association. Thus, it is also possible that any of these factors might instead be influencing relational aggression, or that some other variable (e.g., social competence, social intelligence) might be influencing both aggression and adjustment.

Also, findings were limited by the focus on peer and self-reports, as opposed to observations or in-depth interviews with participants. In fact it might have been informative to obtain reports of adjustment from alternative sources (e.g., peers). Results of previous research have suggested that relationally aggressive, as well as overtly aggressive individuals, might have somewhat unrealistic, perhaps over-inflated

perceptions of their social competencies (e.g., Sinclair, 2000). Thus, it is possible that relationally aggressive individuals and members of highly relationally aggressive groups might be over-optimistic with regards to the characteristics and qualities of their relationships (see Pepler & Craig, 1998, for advantages and disadvantages associated with different methods of assessing peer relationships). Some additional problems may occur with respect to self-reports of relational victimization, since the somewhat more covert nature of relationally aggressive actions might mean that some individuals might not even know about some instances of victimization. Thus, peer reports of victimization might have provided additional useful information in this regard.

Cairns and Cairns (1991) Model of the Development of Aggression

Overall, the results of the present study were consistent with the propositions put forth in the model proposed by Cairns and Cairns (1991). Results indicated that group members were similar with respect to overt and relational aggression and relational aggression was associated with greater network centrality. Furthermore, findings indicated that group or “network” characteristics were not synonymous with individual characteristics, either with regards to level of aggression or social adjustment, but that the influence of these effects, overall, tended to be additive in some cases, particularly with respect to feelings of loneliness. Overall, results seem to suggest that this model may be a useful guide for researchers attempting to assess the many factors and levels of influence in the development of aggression. Although the focus of the present study was at only two levels of the model (individual, group), many directions for future research may be generated within the context of this model.

Directions for Future Research within the Framework of the Model

There are several avenues for future research that may be suggested based on the result of the present study and the model, most of which can be addressed through the use of longitudinal research, and more in-depth, ethnographic, or observational designs, perhaps combined with the use of qualitative as well as quantitative research methodologies.

Longitudinal Research. Based on the results of the present study, one of the most obvious avenues for future research is longitudinal research to investigate developmental trends in the uses and functions of relational aggression at different ages. It will be important to assess these factors in conjunction with both concurrent outcomes at different ages as well as consequences of engaging in relationally aggressive actions or being closely associated with extremely relationally aggressive individuals over the long-term, for future adjustment. Given the apparent contradictions in the literature to date, particularly with respect to the social adjustment of relationally aggressive individuals, the conception of “time” in Cairns and Cairns’ model should figure prominently in any attempt to untangle these seemingly contradictory findings. Thus, it may be that relationally aggressive individuals are able to be much more successful in their attempts to manipulate the peer group in adolescence and thus fare better socially at this time. In early adolescence, when being accepted and belonging to a group begin to take on relatively more importance, those who are relatively skilled in manipulating the peer groups and have mastered the techniques of inclusion and exclusion may be relatively more powerful and influential.

An alternative possibility is that *different individuals* may choose to employ relationally aggressive actions at different ages. Thus, this is a question related to whether there is continuity or change in the use of relationally aggressive actions over the long term. For example, are children identified as relationally aggressive in childhood, the same individuals who would be identified as being relationally aggressive in adolescence, or in adulthood? It is possible that some relationally aggressive children may be more skilled in performing these acts than others. Thus, a fair number of individuals who employ relationally aggressive actions in childhood may lack the social competence or social intelligence to perform these acts in a manner that is acceptable to their peers. Being rejected by their peers for their actions (and perhaps becoming more lonely – thus, the association between relational aggression and loneliness in childhood), might they stop using these relationally aggressive strategies? So, then what might happen in adolescence? Might relationally aggressive adolescents be the same children who were “good at using relational aggression” as well as those who they draw into their groups and cliques who also learn to use relationally aggressive tactics in order to survive and maintain their own status and popularity within the group and the network as a whole? Again, this does not seem to be a question that can be answered based on the current status of the research in the area, but might be questions that could be addressed within a longitudinal framework.

Finally, taking a “snapshot” of adolescents’ relationships at one particular point in time is likely somewhat artificial, particularly given the nature of relationally aggressive actions. For example, acts of victimization occur on a regular, continuous basis within the peer group, and although some children are probably likely to be victimized more often

than others, that does not preclude the possibility that some children may at one point be an aggressor, at others a victim, and at others, neither one nor the other. For example, it is possible that some adolescents may join a popular relationally aggressive peer group possessing the necessary degree of social intelligence, attractiveness, etc. to manage well within the group and thus maintain their status in the group. Others, perhaps lacking the necessary physical, social, or social-cognitive abilities or characteristics to be successful in this context may start to be victimized by other more socially competent individuals within the group, and may eventually be ejected from the group to join the ranks of the less popular, less central, or less relationally aggressive group members.

Thus, by assessing factors such as aggression and victimization at only one point in time, it does not seem fair to suggest that one is obtaining an accurate portrayal of what is going on within and between these groups. More specifically, members of highly relationally aggressive peer groups who experience the most victimization are thus perhaps eventually being entirely ejected from the group. In essence then, at any one point in time, highly relationally aggressive groups are likely to consist mostly of the “winners” in the social game, while those who have been unsuccessful and potentially victimized within the group may have been relegated to the ranks of the less central or lower status groups in the social network. This is one question researchers may attempt to investigate by tracking changes in children’s peer relationships, using more in-depth observational or interview methodologies.

Use of More In-Depth/Descriptive Research Designs and Analysis. One way to gain more detailed information regarding the actual dynamics of inclusion and exclusion in students’ peer groups might be through the use of ethnographic studies or in-depth

interviews and observations conducted over several years of late childhood through early adolescence. By employing more in-depth techniques, perhaps coupled with questionnaire or interview assessments of wider variety of social adjustment and mental health indices, a much richer description of adolescents' groups may be captured. Thus, it appears that more research should be focused at the second level of Cairns and Cairns' model to study specific interactions in more detail. Although psychologists tend to focus on quantitative research methodologies, the study of relational aggression may require more in depth observation and analysis, such as participant observation and more qualitative research methodologies. This may be necessary at least to begin with, so that we might obtain a richer and more detailed analysis of the dynamics of inclusion and exclusion that appear to be controlled mainly by highly aggressive individuals, at least in late childhood and early adolescence (see Adler & Adler, 1995; Eder, 1985 for detailed descriptions of the inclusionary and exclusionary tactics employed by highly central/popular group members to control and influence the behaviors of students with lesser status among the network).

For example, in order to provide a clearer picture of what might be happening within groups versus between groups, researchers could choose to follow a number of individuals with different statuses (e.g., nuclear, secondary, isolated) and behavioral profiles (relationally aggressive, relationally victimized, not extremely aggressive but member of highly relationally aggressive group) for a period of time. In this manner, researchers could monitor adolescents' rises and falls upon the "ladder of popularity/status", perhaps assessing indices of adolescents' social adjustment at points where major changes occurred in group affiliation or status. Adler and Adler (1995)

suggest that group members experienced their greatest feelings of acceptance and self-worth shortly after they were included into a clique. In contrast, they suggested that being ejected from a clique represented the ultimate form of social exclusion and should therefore have severe consequences for one's social life and identity. Thus, researchers could assess adolescents' feelings about and perceptions of relationships and themselves over time, in order to determine whether changes in perceptions of and feelings about relationships and oneself followed changes in group experiences (e.g., from initial group acceptance, to potential minor episodes of rejection or exclusion, to potential, final expulsion from a group). Again, these are questions that might be answered by conducting more in-depth interviews, or participant observation over at least a moderate period of time.

Finally, researchers also need to be prepared for the fact that the study of relationally aggressive individuals may be even more challenging, as opposed to investigations regarding more overtly aggressive children, as relational aggression appears to be associated with a greater desire to avoid getting caught or getting into trouble for their actions (e.g., Delveaux & Daniels, 2000), and also a greater level of social intelligence (Bjorkqvist, Osterman, & Kaukiainen, 2000; Kaukiainen et al., 1999). Thus, researchers may need to be more creative in their research design and data collection methods in order to obtain a complete picture of these individuals' interactions.

Summary

In summary, Cairns and Cairns (1991) model appear to provide a useful framework within which to think about and study aggressive behavior. Numerous additional hypotheses have been generated within the context of the model, including

links between family and peer systems, and one might also suggest that attitudes and behaviors related to aggression at wider levels of the network (i.e., within the school, culture, or society), and perhaps also the general norms and the “informal peer cultures” of the schools adolescents attend, might also play a large role in the development and maintenance of aggression. Thus, these broader developmental contexts are also likely to be important areas for future research in the area.

Relational Aggression: Should we be Worried?

A final question that one might ask is whether there is any cause for concern with respect to relational aggression in the context of adolescents’ peer networks. I would argue that the answer to this question is “yes”. First of all, the result of the present study were based on findings related to only a few indices of adjustment, and even though relationally aggressive adolescents and highly relationally aggressive groups did not report any deficits in social adjustment, this does not necessarily preclude the fact that adjustment difficulties might be observed in other domains (or be reported by other individuals such as peers, teachers, parents, or impartial observers).

Furthermore, the lack of *concurrent* adjustment difficulties does not preclude the possibility of future adjustment problems (e.g., Werner & Crick, 1999). Thus, it is possible that relationally aggressive adolescents may learn a style of interaction that provides them with positive outcomes and gets them what they want in adolescence. However, it is unclear whether the dynamics of social interactions in later adolescence or adulthood would provide relationally aggressive individuals with the same rewards. If not, it is possible that these individuals may become accustomed to a style of interaction that is maladaptive in adulthood. Having failed to learn more prosocial interactional

styles in adolescence, it may be difficult for them to learn to, or see the necessity for, the use of such prosocial actions in adulthood.

Notwithstanding the findings obtained regarding the potential for either negative or positive aspects of social adjustment for relationally aggressive individuals or groups, however, perhaps even stronger reasons for concern reflect the established or potential impact of these types of actions for victims, or for society as a whole. Results of previous research have documented extensively the negative impact of relationally aggressive actions for the victims of these behaviors (e.g., Crick & Bigbee, 1998; Crick & Grotpeter, 1996). Although the majority of previous studies have been conducted in late childhood, the results of the present study indicate an association between relational victimization and maladjustment even in adolescence. Although not the focus of the present study, results of intercorrelations between measures presented in the results section of this paper indicated that relational victimization was moderately to strongly associated with greater loneliness, and poorer representations of attachment relationships with peers. If for no other reason than the harmful effects reported by relational victims, then yes, there is cause for concern with respect to relational aggression.

And finally, it seems important to discuss the potential implications of the use of relationally aggressive actions, which include among other things, attempts to control and manipulate one's peers and to exclude others from one's relationships, groups, and interactions. Adler and Adler (1995) suggest that group or clique interactions may be either positive or negative, depending on the context and the nature of these interactions. However, the use of one's own power within the clique to control the inclusion or exclusion of members may have long-term consequences for all individuals involved and

can create a strong feelings of in-group and out-group differentiation. On this note, I leave you with a quote from Adler and Adler that provides an excellent description of the potential consequences of these clique dynamics for the future of society as a whole (Adler & Adler, 1995, p. 160).

Finally, these clique dynamics teach children to reproduce society's strong feelings of differentiation between in-groups and out-groups. Children become highly sensitized to the opposition in which these groups are juxtaposed and to the sharply defined boundaries separating them. They develop feelings of intolerance toward individuals who are not privileged to be accepted as members, adopting an ethnocentric perspective that accords higher status to their own attitudes, values, and behaviors while devaluing those of others.....Clique dynamics of inclusion and exclusion teach young people the fundamental values of conflict and prejudice. As such, they may form the basis for the societal reproduction of racism, anti-Semitism, sexism, and other forms of bigotry and discrimination.

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Appendix A

Parental Consent Letter

Dear Parents,

Adolescents' social experiences within the school setting can have a large impact on both their ability to perform academically as well as their perceptions of the school environment in general. Students who have generally positive relationships with their peers tend to be more relaxed and enjoy a more positive view of their school environment. On the other hand, those who experience greater difficulties in their social relationships may also experience problems within the school setting, such as being teased or feeling lonely. Thus, it is important to learn more about adolescents' relationships with others their own age, so that the school experience can be a positive one for all students.

Researchers from Carleton University, in Ottawa, Ontario, are conducting a research project concerned with adolescents' relationships with their schoolmates. In this study, adolescents' friendships as well as their relationships with other students in their classroom will be examined. For example, we want to know about the number of students that adolescents hang around with on a frequent basis and whether their friends are male or female. In addition, we know that adolescents' relationships can be both positive (helping classmates and doing nice things for them) at times, as well as problematic at other times (e.g., minor conflicts involving teasing, pushing, or hitting can also be part of these relationships). Thus, we want to examine some of these features of adolescents' relationships.

This study will take place at your child's school during the month of January. Adolescents in Grades 7 and 8 will be asked to participate. Please indicate, on the attached consent form, whether you choose to have your child participate. **All students who return their consent forms, whether they agree to participate in the study or not, will be entered in a draw for a \$25 gift certificate from a music store. (One draw will be made from each school).** Adolescents who choose to participate in this study will be asked to fill out a questionnaire during a group session in his/her regular classroom. This questionnaire will include questions regarding adolescents' friendships, and the people that they spend time with at school. They will be asked about the nature of these relationships (e.g., teasing, arguing, helping, and caring acts). The administration of these questionnaires will take approximately 1 hour and 15 minutes to complete.

This project has been approved by the Carleton University Research Ethics Committee for Psychological Research and the principal of your child's school. All information collected for this study is completely confidential. Questionnaires will be reviewed only by the researchers and will be used only to extract data for study and data analysis. Study results will be reported in ways that ensure complete confidentiality of individual participants, and will not appear in any school records. General results of the study will be available to both school officials and interested parents once the research study is completed. Finally, although we will not discuss students' individual responses with school personnel, we do think that it is important for children to be able to discuss their relationships with their schoolmates if they feel the need to do so. Therefore, we will remind students that they should feel free to talk about the research study, or any other aspects of their peer relationships with their parents or teachers if they want to. A list of resources will also be provided for parents and students should they wish to discuss matters further.

Participation in this study is completely voluntary and your child may choose to withdraw, or decline to answer certain questions, without penalty, at any time during the study. Additionally, only students with written permission will be allowed to participate. We would be grateful for your co-operation. **Whether or not you wish to have your child participate in this study, please complete the attached form and have your child return it by early next week as we wish to be sure you have received the request.** If you have any questions, please feel free to contact us at the number listed below. Should you have any ethical concerns regarding this study, please feel free to contact Dr. M. Gick (Chair, Carleton University Research Ethics Committee for Psychological Research, 520-2600, ext. 2664). Should you have other concerns about this study, then please contact Dr. K Matheson (Chair, Department of Psychology, 520-2600, ext. 2648). Thank you for your assistance in this research project.

Sincerely,
Kendra Delveaux

Dr. Tina Daniels

CONSENT FORM

The information collected for this project is confidential and protected under the Municipal Freedom of Information and Protection of Privacy Act, 1989.

I have read and understood the request for my son/daughter to participate in the study of adolescents' friendships and peer relationships. I have discussed it with my son/daughter and...

_____ I **give** permission for my child to participate.

_____ I **do not give** permission for my child to participate.

Date: _____

Name of Child: _____ Age: _____ Grade: _____
 _____ (please print)

Name of Parent or Guardian: _____
 (please print)

Signature of Parent or Guardian: _____

**Please have your child return the signed consent form
to school by next week. Thank you.**

Appendix B

Oral Debriefing for Students

I would like to thank you very much for helping me with my study. First, I want to remind you that the things we talked about today are “confidential”. That means that I’m not going to share your answers to these questions with your teachers, parents, or other kids. Also, I want you to know that you don’t have to talk about these things with anyone either. Even if your classmates ask you about your any of your answers, you don’t have to tell them anything that you don’t want to. But sometimes we all need to talk about the way that we feel. So, if you want to talk to someone about the questions you were asked today, or you feel that you are having problems with other kids at school, please talk to your parents or teachers about it.

Second, I would like to give you a little bit more information about my study. As you all know, friendships and the relationships that you have with people at school, can be a lot of fun. But sometimes people also have arguments or disagreements with their peers. What I’m trying to do, is find out how people your age get along with each other, and why people sometimes do nice things for each other, but other times might do some “not-so-nice” things, like teasing or fighting. I also want to know what effect these kinds of things have on people’s relationships – for example, do things like teasing and fighting cause relationships to end or can friends work these things out and keep their friendships. And these are some of the things that I will be looking at as this study continues. If researchers can find some answers to some of these questions, then maybe we can find a way to help adolescents when they have problems with their relationships, and help them to have more positive relationships and great friendships. The answers that you have given us will help us to do this. So, I want to thank you very much for sharing your thoughts and feelings with us.

Does anyone have any questions about any of the surveys we did?

O.K. Thanks very much for your help.

Appendix C

Debriefing Letter for Parents

Dear Parents,

We would like to take this opportunity to thank you and your child for your participation in our study regarding adolescents' peer relationships. The purpose of this study was to examine the structure and quality of adolescents' friendships and larger peer group relationships. We know that adolescents' relationships can be positive at times, as well as problematic at other times (e.g., teasing, arguments, and minor conflicts are also part and parcel of these relationships). Thus, we want to examine some of these features of adolescents' relationships in greater detail. Friendships, in general, tend to be relatively positive experiences for children. However, there are times when even "best" friends experience conflict in their relationships. In fact, friendships can sometimes be used as a means for a child to hurt another peer or to get something that he or she wants. For example, a number of children report that they have experienced threat of friendship termination (e.g., If you don't do what I say, I'm not going to be friends with you anymore). We think it is important to examine both positive and negative aspects of children's friendship relations if we are to fully understand the nature of these associations.

Also, we would like to remind you that all individual information collected from students is confidential and no individual results will be reported. However, we do encourage children to talk about any questions or issues they might have regarding their relationships with others their own age, particularly if they feel that they are having difficulties with other individuals at school. We have told all adolescents who participated in this study to speak to a trusted adult (parent, teacher) if they have anything they feel they need to talk about, since we believe that it is important for children to have such an outlet. We have also included a list of agencies and resources (listed on the back of this letter) that you and your children may find useful.

Approximately 500 students from several different schools were asked to take part in this study. Over the following year, the information will be analyzed and a summary report based on all information from all schools will be written. This summary will be sent to each participating school. If you would like a summary of the results of the study, please contact Kendra Delveaux or Tina Daniels at the numbers listed below. Should you have any ethical concerns about this study, please feel free to contact Dr. M. Gick (Chair, Carleton University Research Ethics Committee for Psychological Research, 520-2600, ext. 2664). Should you have any other concerns about this study, please contact Dr. K. Matheson (Chair, Department of Psychology, 520-2600, ext.2648). Thank you for your assistance in this research project.

Sincerely,

Kendra Delveaux

Dr. Tina Daniels

List of Agencies/Resources

- Youth Services Bureau of Ottawa-Carleton: 729-1000
- Kids Help Phone – Crisis: 1-800-668-6868

Books/Articles for Adults

Paul, Harry A. *When Kids Are Mad, Not Bad: A Guide to Recognizing and Handling Your Child's Anger*. Berkley Publishing Group, 1999. Pointing out that anger may underlie many behaviour problems of children; show parents how to detect hidden anger.

Kreidler, William J. "When Anger Rears It's Ugly Head." *Instructor Magazine*, April 1996, p.24. Anger-management concepts for helping kids who heat up with anger cool down.

Marano, Hara Estroff. "Big, Bad, Bully." *Psychology Today*. Sept. 1995, p. 50. The psychology behind bullying and what children and parents can do to handle bullies or avoid bullying behaviour.

Videos for Teachers

Friendship: The Good Times...The Bad Times – 22 minutes. Friendship takes on an increasingly important intensity and significance during the growing-up years of puberty. Program helps students understand that changes in friendship are common at this time, and that when a friendship dissolves, the best thing to do is to find new friends who share similar values and interests. Vignettes and open-ended questions stimulate class discussion about loyalty and responsibility in friendship.

Real People – Cliques: Who's In? Who's Out? – 24 minute video, teacher's guide. Using true-to-life scenarios, program explores the nature of cliques, focusing on the kinds of group dynamics that cause heartache and anxiety as well as on friendship groups.

Books for Children

Cole, Joanna. *Bully Trouble*. New York: Random House, 1989.

Carlson, Nancy. *Loudmouth George and the Sixth Grade Bully*. New York: Puffin Books, 1983.

Fitzhugh, Louise. *Harriet the Spy*. New York: Harper Collins. Harriet faces conflicts with her friends when they discover what she wrote about them in her notebook.

Appendix D

Peer Nomination Measure
Crick & Grotpeter (1995)

The first questionnaire asks about the students in your class. We know not everyone behaves the same way in situations with other people, and that some people respond differently than others. So, we want to find out a little bit about the students in your class and how they behave. For this first questionnaire, you see a list of behaviors, and we want to find out which students in your class behave in each of those ways. Now, it is not necessary for us to know the names of each person, but it is necessary for us to be able to distinguish one person from another. So we have given you a list of names with numbers beside them, and we would like you to use these numbers to answer some of the questions on the survey. If you look at the first question, it asks which of your classmates is a good leader. So for example, if you believe that "Jane Doe" is a good leader, you would look up her name on your list, find the number beside it, and then write that number in one of the spaces below the question.

So, for each question, you can choose up to three students from your class for each question (and put their numbers in the three spaces), but **you can not name yourself** for any of the questions on this particular survey. However, you can pick the same classmate for more than one question if you would like. So, for example, if you think that Jane Doe is "a good leader" but she also "spreads rumors about other kids", then you can list her name for both questions.

Now we do want everyone to make their own decisions for this survey, so please keep your responses to yourself and cover up your answers with a book or a piece of paper as you go along.

BEHAVIOURS

1. Write the ID numbers of up to three classmates who you think would make good leaders if you were playing a game. These are the classmates you would like to have in charge during a game or an activity.

2. Write the ID numbers of up to three classmates who try to make other kids not like a certain person by spreading rumors about them or talking behind their backs.

3. Write the ID numbers of up to three classmates who hit, kick, or punch other kids at school.

4. Write the ID numbers of up to three classmates who say or do nice things for other kids.

5. Write the ID numbers of up to three classmates, who when they are mad at a person, get even by keeping that person from being in their group of friends.

6. Write the ID numbers of up to three classmates who say mean things to other kids to insult them or put them down.

7. Write the ID numbers of up to three classmates who help out other when they need it.

8. Write the ID numbers of up to three classmates, who when they are mad at a person, ignore the person or stop talking to them.

9. Write the ID numbers of up to three classmates who push and shove other kids around.

10. Write the ID numbers of up to three classmates who tell their friends that they will stop liking them unless the friends do what they say.

11. Write the ID numbers of up to three classmates who try to cheer up other kids who are upset or sad about something. They try to make the kids feel happy again.

12. Write the ID numbers of up to three classmates who tell others that they will beat them up unless the kids do what they say.

13. Write the ID numbers of up to three classmates who try to keep certain people from being in their group when it's time to play or do an activity.

14. Write the ID numbers of up to three classmates who call others mean names.

Appendix E

Friendship Nominations

We would like to know who your close friends are. Please write down the names of your friends **in your grade, at your school**.

First Best Friend:

Second Best Friend:

Third Best Friend:

If you have any other **good friends** in your grade, at your school, please also list their names here.

Appendix F

Peer Groups

Cairns, Gariepy, Kindermann, & Leung (in press)

We would like to know about the people who hang around together at your school. Are there any people who hang around together a lot in your grade at your school? Please list these groups of people below.

Group A

[illegible]

Group B

[illegible]

Group C

[illegible]

Group D

[illegible]

Group E

[illegible]

Group F

[illegible]

Group I

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are organized into three distinct vertical columns. Each column contains ten evenly spaced horizontal lines, providing a structured space for writing or drawing. There are no margins, text, or other markings on the page.

Are there any people at your grade, in your school, who don't hang around with a particular group? Please list their names below.

Appendix G

Determining Centrality in Social Clusters and Social Networks
Cairns et al. (in press)

Frequency-of-nominations information for each person is found on the diagonal of the co-occurrence matrix. The centrality index (CI) for each cluster is the average of the two persons within that cluster who received the highest number of nominations. Given the CI index, both the relative status of the cluster (i.e., centrality) and the relative status of each person within her/his cluster can be readily defined. “High” centrality clusters refer to those clusters which have a CI index which falls within the range of $\geq (0.7 \times CI_h)$ where CI_h is the highest ranking cluster in the network. “Medium: centrality clusters have a CI index which falls within the range defined by $> (0.3 \times CI_h)$ and $< (0.7 \times CI_h)$. “Low” centrality clusters have a CI index which is equal to or below $(0.3 \times CI_h)$.

Parallel classification criteria have been employed to identify the status of persons within clusters. Hence an individual is considered to be a “High” member of the cluster if her/his individual’s frequency-of-nomination score is $\geq (0.7 \times CI_i)$ where CI_i is the CI index of the cluster of which the person is a member. Persons are “medium” centrality in the cluster when their frequency-of-nomination scores fall between $> (0.3 \times CI_i)$ and $< (0.7 \times CI_i)$. “Low” centrality members of clusters are defined by frequency-of-nomination scores $\leq (0.3 \times CI_i)$. If individuals are not nominated for cluster membership, they are regarded as “isolated” in the network.

Appendix H

Co-Occurrence Matrix (Example)

Cairns et al. (in press)

	Amy	Dea	Cam	Di	Edi	Fay	Gay	Hea	Ila	Joy	Kim	Lyn	Mia	Nia	Ola
Amy	13 ^b	11 ^c	12	7	12	10	5	4	-	-	-	-	2	-	-
Dea	11	12	11	6	11	8	5	4	-	-	-	-	3	1	1
Cam	12	11	13	7	13	10	5	4	-	-	-	-	3	1	1
Di	7	6	7	8	8	5	3	2	-	-	-	-	-	-	-
Edi	12	11	13	8	14	10	5	4	-	-	-	-	3	1	1
Fay	10	8	10	5	10	12	6	5	-	-	-	-	2	-	-
Gay	5	5	5	3	5	6	6	3	-	-	-	-	-	-	-
Hea	4	4	4	2	4	5	3	2	-	-	-	-	4	4	4
Ila	-	-	-	-	-	-	-	-	14	14	14	14	-	-	-
Joy	-	-	-	-	-	-	-	-	14	14	14	14	-	-	-
Kim	-	-	-	-	-	-	-	-	14	14	14	14	-	-	-
Lyn	-	-	-	-	-	-	-	-	14	14	14	14	-	-	-
Mia	2	3	3	-	3	2	-	4	-	-	-	-	2	7	7
Nia	-	1	1	-	1	-	-	4	-	-	-	-	7	8	8
Ola	-	1	1	-	1	-	-	4	-	-	-	-	7	8	8

^a The table frequencies represent the nominations made by all (17) respondents; note that the person "Pam" was omitted from the co-occurrence matrix because she had zero nominations.

^b Diagonals indicate the number of times the individual was named to any group.

^c Off-diagonal numbers indicate the number of times respondents named the two persons (designated by the row and column) to the same group.

Appendix I

Social Experience Questionnaire Crick & Grotpeter (1996)

Part 1

1. How often does another student give you help when you need it?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

2. How often do you get hit by another student at school?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

3. How often do other students leave you out on purpose when it is time to play a game or do an activity?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

4. How often does another student yell at you and call you mean names?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

5. How often does another student try to cheer you up when you feel sad or upset?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

6. How often does a student who is mad at you try to get back at you by not letting you be in their group anymore?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

7. How often do you get pushed or shoved by another student at school?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

8. How often does another student do something that makes you feel happy?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

9. How often does a classmate tell lies about you to make other kids not like you anymore?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

10. How often does another student kick you or pull your hair?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

11. How often does another student say they won't like you unless you do what they want you to do?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

12. How often does another student say something nice to you?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

13. How often does a student try to keep others from liking you by saying mean things about you?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

14. How often does another student say they will beat you up if you don't do what they want you to do?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

15. How often do other students let you know that they care about you?

1	2	3	4	5
Never	Almost Never	Sometimes	Almost All The Time	All The Time

Appendix J

Loneliness Questionnaire Asher & Wheeler (1985)

Listed below are several statements that describe the way you feel about people and activities at school. Please read each one and decide how true each statement is for you, by circling a number from 1 to 5 for each statement.

	Always True	True Most of theTime	Sometimes True	Hardly Ever True	NotTrue At All
1. It's easy for me to make new friends at school.....	1	2	3	4	5
2. I like to read.....	1	2	3	4	5
3. I have nobody to talk to in class.....	1	2	3	4	5
4. I am good at working with other students in my class.....	1	2	3	4	5
5. I watch TV a lot.....	1	2	3	4	5
6. It's hard for me to make friends at school..	1	2	3	4	5
7. I like school.....	1	2	3	4	5
8. I have lots of friends in my classes.....	1	2	3	4	5
9. I feel alone at school.....	1	2	3	4	5
10. I can find a friend in my class when I need one.....	1	2	3	4	5
11. I play sports a lot.....	1	2	3	4	5
12. Its hard to get people at school to like me..	1	2	3	4	5
13. I like science.....	1	2	3	4	5
14. I don't have anyone to hang around with at school.....	1	2	3	4	5
15. I like music.....	1	2	3	4	5
16. I get along with my classmates.....	1	2	3	4	5

	Always True	True Most of the Time	Sometimes True	Hardly Ever True	Not True At All
17. I feel left out of things at school.....	1	2	3	4	5
18. There's no other students I can go to when I need help in school.....	1	2	3	4	5
19. I like to paint and draw.....	1	2	3	4	5
20. I don't get along with other students in school.....	1	2	3	4	5
21. I'm lonely at school.....	1	2	3	4	5
21. I am well liked by the other students in my classes.....	1	2	3	4	5
23. I like playing board games a lot.....	1	2	3	4	5
24. I don't have any friends in class.....	1	2	3	4	5

Appendix K

Inventory of Parent and Peer Attachment (Peer Scale) Armsden & Greenberg (1987)

Below are different descriptions of what people and their friends are like. Please read each statement and decide how true each of these things are for you and your close friends.

	Almost Never or Never True	Seldom True	Sometimes True	Often True	Almost Always or Always True
1. I like to get my friends' point of view on things I'm concerned about.....	1	2	3	4	5
2. My friends sense when I'm upset about something.....	1	2	3	4	5
3. When we discuss things, my friends consider my point of view.....	1	2	3	4	5
4. Talking over my problems with my friends makes me feel ashamed or foolish.....	1	2	3	4	5
5. I wish I had different friends.....	1	2	3	4	5
6. My friends understand me.....	1	2	3	4	5
7. My friends encourage me to talk about my difficulties.....	1	2	3	4	5
8. My friends accept me as I am.....	1	2	3	4	5
9. I feel the need to be in touch with my friends more often.....	1	2	3	4	5
10. My friends don't understand what I'm going through these days.....	1	2	3	4	5
11. I feel alone or apart when I am with my friends.....	1	2	3	4	5
12. My friends listen to what I have to say.....	1	2	3	4	5
13. I feel my friends are good friends.....	1	2	3	4	5
14. My friends are fairly easy to talk to.....	1	2	3	4	5
15. When I am angry about something, my friends try to be understanding.....	1	2	3	4	5
16. My friends help me to understand myself better.....	1	2	3	4	5

	Almost Never or Never True	Seldom True	Sometimes True	Often True	Almost Always or Always True
17. My friends are concerned about my well-being.....	1	2	3	4	5
18. I feel angry with my friends.....	1	2	3	4	5
19. I can count on my friends when I need to get something off my chest.....	1	2	3	4	5
20. I trust my friends.....	1	2	3	4	5
21. My friends respect my feelings.....	1	2	3	4	5
22. I get upset a lot more than my friends know about.....	1	2	3	4	5
23. It seems as if my friends are irritated with me for no reason.....	1	2	3	4	5
24. I tell my friends about my problems and troubles.....	1	2	3	4	5
25. If my friends know something is bothering me, they ask me about it.....	1	2	3	4	5

Appendix L1
Female Relationally Aggressive Group

Appendix L2
Female Relationally Aggressive Group

Group 213, Nuclear Status

Appendix L3
Female Relationally Aggressive Group

Group 219, Secondary Status

Appendix L4
Female Relationally Aggressive Group

Appendix L5
Female Relationally Aggressive Group

Appendix L6
Female Relationally Aggressive Group

Group 501, Nuclear Status

Appendix M1
Female Non-Aggressive Group

Group 103, All Female, Secondary Status

Appendix M2
Female Non-Aggressive Group

Group 110, Peripheral Status

Appendix M3
Female Non-Aggressive Group

Group112, Secondary Status

Appendix M4
Female Non-Aggressive Group

Group113, Secondary Status

Appendix M5
Female Non-Aggressive Group

Group # 118, Secondary Status

Appendix M6
Female Non-Aggressive Group

Group # 121, Secondary Status

Appendix M7
Female Non-Aggressive Group

Group # 122, Secondary Status

Appendix M8
Female Non-Aggressive Group

Appendix M9
Female Non-Aggressive Group

Group 211, Nuclear Status

Appendix M10
Female Non-Aggressive Group

Group 217, Nuclear Status

Appendix M11
Female Non-Aggressive Group

Group 218, Secondary Status

Appendix M12
Female Non-Aggressive Group

Group 220, Peripheral Status

Appendix M13
Female Non-Aggressive Group

Group 301, Nuclear Status

Appendix M14
Female Non-Aggressive Group

Group 303, Nuclear Status

Appendix M15
Female Non-Aggressive Group

Group 304, Secondary Status

Appendix M16
Female Non-Aggressive Group

Group 403, Nuclear Status

Appendix M17
Female Non-Aggressive Group

Group 405, Nuclear Status

→ Non-Reciprocated Friendship
↔ Reciprocal Friendship

Appendix M18
Female Non-Aggressive Group

Group 407, Nuclear Status

Appendix M19
Female Non-Aggressive Group

Group 503, Nuclear Status

Appendix N1
Male Overtly Aggressive Group

Group 109, Secondary Status

Appendix N2
Male Overtly Aggressive Group

Group 111, Peripheral Status

Appendix N3
Male Overtly Aggressive Group

Group 206, Secondary Status

Appendix N4
Male Overtly Aggressive Group

Group 209, All Male, Nuclear Status

Appendix N5
Male Overtly Aggressive Group

Group 215, Secondary Status

Appendix N6
Male Overtly Aggressive Group

Group 404, Secondary Status

→ Non-Reciprocated Friendship
↔ Reciprocal Friendship

Appendix N7
Male Overtly Aggressive Group

Appendix N8
Male Overtly Aggressive Group

Group 502, Nuclear Status

Appendix N9
Male Overtly Aggressive Group

Group 507, Nuclear Status

→ Non-Reciprocated Friendship

↔ Reciprocal Friendship

Appendix O1
Male Non-Aggressive Group

Group 104, Secondary Status

Appendix O2
Male Non-Aggressive Group

Group 106, Secondary Status

Appendix O3
Male Non-Aggressive Group

Group 108, Secondary Status

→ Non-Reciprocated Friendship

↔ Reciprocal Friendship

Appendix O4
Male Non-Aggressive Group

Group 123, Peripheral Status

Appendix O5
Male Non-Aggressive Group

Appendix O6
Male Non-Aggressive Group

Group 212, Secondary Status

Appendix O7
Male Non-Aggressive Group

Group 214, Secondary Status

→	Non-Reciprocated Friendship
↔	Reciprocal Friendship

Appendix O8
Male Non-Aggressive Group

Group # 302, Nuclear Status

Appendix O10
Male Non-Aggressive Group

Group 309, Secondary Status

Appendix O11
Male Non-Aggressive Group

Appendix O12
Male Non-Aggressive Group

Group 408, Secondary Status

Appendix O13
Male Non-Aggressive Group

Appendix O14
Male Non-Aggressive Group

Group 505, Nuclear Status