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# Relational aggression and popularity

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# RELATIONAL AGGRESSION AND POPULARITY

by

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**DEDICATION**

To my husband Gary,

your love, strength, belief, and patience

have given me the fortitude to make my dream a reality.

Thank you for joining me on this journey.



To my mother, father, and brother,

thank you for always pushing me to

"reach for that apple"

and for showing me that, with hard work, anything is possible.

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## CHAPTER 1

## Introduction

Relational aggression has been defined by Crick and her pioneering research team as the infliction of harm to "others through damage to their peer relationships or through the threat of such damage" (Crick, 1995; p. 313). It consists of behaviors such as rumor spreading intending to cause peers to reject the target, withholding friendship intending to inflict harm, and excluding a child from an intimate group of friends (Crick & Grotpeter, 1995).

While relationally aggressive attacks are excused by many as "normal" behavior, particularly for females, the research indicates that from early childhood into adulthood, both the perpetrators and victims of relational aggression are at risk for, and often experience, a broad array of psychosocial difficulties. These findings hold true regardless of the child's gender (Card, Stucky, Sawalani, & Little, 2008; Crick, 1997; Crick, Casas, & Ku, 1999; Moretti, Holland, & McKay, 2001; Ostrov & Houston, 2008; Putallaz, Grimes, Foster, Kupersmidt, Coie, & Dearing, 2007; Roach & Gross, 2003; Werner & Crick, 1999). Relationally aggressive behavior has been linked to adverse academic outcomes such as low grades, as well (Cillessen & Mayeux, 2007). Evidence also suggests that relationally aggressive individuals experience low levels of sociometric popularity (Werner & Crick, 2004) and in many cases become actively rejected over time (Crick, Ostrov, Burr, Cullerton-Sen, Jansen-Yeh, & Ralston, 2006; Werner & Crick, 1999).

Despite recognition of this form of aggression in the research literature and documentation of adverse impact for both perpetrators and victims, the old adage, girls

will be girls, is frequently used by adults to exempt themselves from responsibility to intervene in relationally aggressive attacks. Research shows that while the parents of both perpetrators and victims are generally unaware of such assaults, teachers typically do very little to intervene (Olweus, 1993; Xie, Swift, Cairns, & Cairns, 2002). Perhaps this is because it is assumed that this type of violence does not cause damage.

Although perpetrators of relational aggression experience adverse consequences, they exhibit highly developed social skills and are viewed as socially competent by the peer group at large (Henington, Hughes, Cavell, & Thompson, 1998). Furthermore, perpetrators of relational aggression often enjoy high levels of perceived popularity. In fact, perceived popularity is not only positively linked with initial levels of relational aggression in high school students, but with increases in both overt and relational aggression during the high school years as well (Mayeux & Cillessen, 2008). Indeed, it is perplexing how relational aggression is associated with a plethora of adverse outcomes including low sociometric popularity enjoying an elevated social status for relationally aggressive individuals, despite their destructive attacks on others.

**Definition of Popularity**

Although by definition the word "popular" denotes the quality of being well-liked by others (http://www.merriam-webster.com/dictionary/popular), individuals identified as popular by their peer group are not always well-liked. In recent years, the research literature has begun to investigate this phenomenon with the complementary concepts of sociometric popularity and perceived popularity. *Sociometric popularity* is a measure of how much a child is liked by his/her peers (Cillessen & Rose, 2005). *Perceived popularity*, on the other hand, is the extent to which an individual is viewed as "popular"

by their peer group (Parkhurst & Hopmeyer, 1998). While some overlap does exist, research indicates that the two models of popularity (sociometric and perceived) are distinct entities (LaFontana & Cillessen, 1999).

Sociometric popularity is associated with positive developmental outcomes such as academic competence (Cillessen & Mayeux, 2007), increased levels of self-perceived competence in general (Hymel, Rubin, & LeMare, 1990) as well as fewer internalizing symptoms than same-aged female peers (Sandstrom & Cillessen, 2006). Furthermore, overt and relational aggression evidence a negative relationship with concurrent and future sociometric popularity (Cillessen & Borch, 2006; Cillessen & Mayeux, 2004; Hymel, Rubin, & LeMare, 1990; Roach & Gross, 2003; Salmivalli, Kaukiainen, & Lagerspetz, 2000).

In contrast, perceived popularity is associated with being socially skilled and having what others want: attractiveness, high socioeconomic status, athletic ability designer clothes, the latest electronics, and intimate relationships with high status members of the opposite sex (Alder, Kless, & Alder, 1992; LaFontana & Cillessen, 2002). Furthermore, while current research does not support a relationship between perceived popularity and relational aggression in elementary aged pupils (Rose, Swenson, & Waller, 2004), perceived popularity is positively linked not only to initial levels of relational aggression in secondary school students, but also increases in both overt and relational aggression over time (Mayeux & Cillessen, 2008; Sandstrom & Cillessen, 2006). While nonaggressive 'nice' children are perceived as popular during the elementary years, the research findings (Cillessen & Borch, 2006; Cillessen & Mayeux, 2004; LaFontana & Cillessen, 2002; Sandstrom & Cillessen, 2008) seem to indicate a

shift by middle and high school so that relationally aggressive individuals enjoy high levels of social status while their non-aggressive peers, although well-liked by others, often fail to attain similar social status levels. The exact timing of this developmental shift has not been delineated.

**Gender Differences in Relational Aggression**

The limited amount of research that has been conducted so far suggests that females preferentially exhibit relational, as opposed to overt, aggression (Putallaz, Grimes, Foster, Kupersmidt, Coie, & Dearing, 2007). Indeed, it appears female hostility is infrequently expressed through physical means, and female aggression seems to manifests itself via attacks on one's social relationships.

With regard to gender differences in levels of relational aggression, contradictory findings have been found at all age levels. However, the preponderance of the evidence seems to indicate that during the preschool and early elementary years, females exhibit higher levels of relational aggression than do males. For example, studying a sample of intact middle-class Caucasian families, Ostrov and Crick (2007) found that preschool girls are more relationally aggressive than boys. Furthermore, in their seminal 1995 study of third through sixth grade children, Crick and Grotpeter found via peer reports that females perpetrate significantly more relationally aggressive behavior than males at this developmental stage.

Findings become more muddled as boys and girls move into and through the developmental periods of adolescence and adulthood. Putallaz, Grimes, Foster, Kupersmidt, Coie, and Dearing (2007), for instance, found that while girls utilized relational, as opposed to overt, as their preferred mode of aggression, general levels of

relational aggression did not differ between males and females in grade four. Meanwhile, Prinstein and Cillessen (2003) found no statistically significant gender effect for relational aggression in a study of early-adolescents. Moreover, Walcott, Upton, Bolen and Brown (2008) failed to find statistically significant evidence to indicate that females are more relationally aggressive than males. Current self-report research suggests that males and females exhibit comparable levels of relational aggression during the years of emergent adulthood (Duncan & Owen-Smith, 2006; Green, Richardson, & Lago, 1996).

At this point, it is difficult to understand inconsistent findings about gender differences in relational aggression. It is possible that the observed gender differences in relational aggression are age specific and that these relationships change throughout the lifespan. When relational aggression is viewed from evolutionary and social learning perspectives, seemingly discrepant findings of gender differences may explain how acquisition of social position is achieved via use of both forms of aggression in changing quantities over time. That is, depending upon age, males and females may utilize different avenues to achieve the same coveted social position: perceived popularity.

**Social Dominance Theory**

Social interaction, in and of itself, has an evolutionary survival value; those who are part of a social group are more likely to flourish because of the increased access to resources provided by the group dynamic. However, as history has shown us again and again, humans do not willingly share resources for the betterment of all; therefore, in-group competition results as group members vie for a disproportionate amount of resources relative to others. A social dominance hierarchy results wherein an individual's social position in the group is determined according to his/her access to resources that are

controlled by the group. Aggression is most likely to result in the early stages of group formation when the various players are vying for position. This is the premise of Social Dominance Theory (Pellegrini, 2008).

Hawley's Resource Control Theory (1999) takes this concept a step further arguing that all members of the group use two opposing, yet complementary resource control strategies (coercive and prosocial) to expand their access to resources. Coercive means of resource control refer to an individual using whatever means necessary (intimidation, aggression, etc.) to take what they want at the expense of others. Prosocial strategies, on the other hand, involve group members working together for a common goal resulting in mutual gains for all. A balance of these strategies allows competitors to attempt to acquire additional access to desired commodities while simultaneously maintaining social ties. Rarely does an individual rely on one strategy to obtain assets, but rather all individuals use these two strategies, in different combinations, to achieve their goals.

Relational and overt aggression are both coercive resource control strategies that can be very effective when used judiciously. However, these behaviors are not used equally across genders: males of all ages engage in significantly more overt aggression than do females (Archer, 2004; Björkqvist, Lagerspetz, Kaukiainen, 1992; Boxer, Sebanac, 2003; Butovskaya, Timentschik, & Burkova, 2007; Card, Stucky, Sawalani, & Little, 2005; Danner, Dubow, Goldstein, & Heretick, 2004; David & Kistner, 2000; Duncan & Owen-Smith;  Heyman & Legare, 2004; Hines & Fry, 1994; Kaukiainen, & Lagerspetz, 2000; Ostrov & Crick, 2007; Putallaz, et al., 2007; Roach & Gross, 2003; Salmivalli & Kaukiainen, 2004; Sears, 1961; Sandstrom & Cillessen; 2006). Females

preferentially engage in relational aggression as opposed to overt aggression (Green, Richardson & Lago, 1996; Park, Essex, Waxler, Armstrong, Klein & Goldsmith, 2005). However, while females initially exhibit higher levels of relational aggression than do males, these differences dissipate and eventually disappear over time (Archer, 2004; Mayeux & Cillessen, 2008; Park, Essex, Waxler, Armstrong, Klein, & Goldsmith, 2005; Xie, Cairns & Cairns, 2002; Xie, Farmer, & Cairns, 2003). Social cognitive theory, particularly with respect to gender role socialization, helps to explain this phenomenon.

**Social Cognitive Theory**

Social Cognitive Theory (Bandura, 1986) suggests that gender-role socialization plays a large part in the resource control strategies enacted by each gender. From toddlerhood, males and females prefer to engage in gender-appropriate sex-stereotyped activities (Bussey & Bandura, 1992; Etaugh & Liss, 1992) and these preferences are not detectable before age 18-months (Idle, Wood, & Desmarais, 1993; Servin, Poulin-Dubois, Coldburne, Sen, & Eichstedt, 2001). Indeed, the gender-typed behaviors of males and females are learned as both proximal (parents, teachers, peers) and distal (mass media and culture) influences interact with a child's emerging cognitive capabilities to determine his or her gender-role identification and ensuing engagement in gender-typed activities through the process of triadic reciprocal determination (Bandura, 1986).

The stereotypical gender-typed socialization of human beings begins with the environment as soon as children are born: boys' rooms are painted blue and they are given trousers to wear, and vehicles, tools and sports equipment to play with, while girls rooms are painted pink, they are given dolls and furniture to play with and are attired in

dresses (Bandura, 1986; Idle, Wood, & Desmarais, 1993; Pomerleau, Bolduc, Malcuit, & Cossette, 1990;).

Gender-typed socialization practices continue throughout the lifespan and are not only imparted by parents (Bussey & Bandura, 1992; Etaugh & Liss, 1992; Fagot & Hagan, 1991; Siegal, 1987; Etaugh & Liss, 1992), but by the larger culture as well (Bandura, 1986; Bussey & Bandura, 1984; Dietz, 1998; Furnham & Mak, 1999; Martin & Haverson, 1981). Likewise, considerable sex-segregation of children's play groups is evident from toddlerhood onward (Maccoby, 1990) and children, themselves, serve as role models, mechanisms of punishment and reinforcement and context cues for engagement or disengagement in behavior (Bandura, 1986; Bussey & Bandura, 1992; Lamb, Easterbrooks, & Holden, 1980; Maccoby, 1990). Gradually over-time, sex-stereotyped standards of behavior are represented as internalized standards of conduct (Bandura, 1984, 1986; Bussey & Bandura, 1992).

Specifically, with regard to aggression, a historically 'male' sex-role, the overtly aggressive behaviors of females are selected against because these behaviors are not acknowledged, and as such not reinforced, in many instances (Fagot & Hagan, 1991). At other times negative consequences are actively applied to female aggressive behavior (Baumrind & Black, 1967; Lytton & Romney, 1991). On the other hand, cooperative play and nurturing role-performance, such as playing house, is highly encouraged by both proximal and distal social influences (Baumrind & Black, 1967; Lytton & Romney, 1991), at least in Westernized families of middle- to upper- socioeconomic status (Fagot & Hagan, 1991).

Conversely, these same aggressive behaviors are encouraged in males (Baumrind & Black, 1967; Fagot & Hagan, 1991; Lytton & Romney, 1991) and males are socialized from a young age that engagement in overt aggression is acceptable in many situations. This differential socialization begins as early as preschool; there are countless same-sex role models (such as actors, sports stars, and superheroes) for young boys who glorify aggression (Bandura, 1986; Wright & Houston, 1983).

Furthermore, fathers and mothers reward aggression in their sons (Bandura, 1986) and excuse their behavior with the idiom of "boys will be boys." Male's overt aggression is rewarded on the sports field and in defense of one's family and country while females are not encouraged to play aggressive supports and are relegated to support roles in the military. This is a direct representation of our society's belief that it is inappropriate for females to be aggressive because aggression is considered inconsistent with the female gender role.

Nevertheless, females are still actively competing for resources (Sheldon, 1989 as cited in Maccoby, 1990). This discouragement of overt aggression almost ensures that aggression will become covert in nature, but still effective. However, over time, male overt aggression, too, becomes covert as overt aggression is actively discouraged by greater societal controls in late childhood/early adolescence. Behaviors that were previously adaptive then cause considerable difficulties as offenders risk suspension, expulsion and police involvement if discovered. As overt aggression no longer provides access to desired commodities, but results in a considerable loss of desired resources a shift occurs: overt aggression decreases while perpetration of relational aggression

simultaneously increases to levels that are almost identical to those of females by the end of high school (Archer, 2004; Mayeus & Cillessen, 2008).

**Purpose of the Study**

The goal of this study is to explore the complex web of relationships between perceived popularity, sociometric popularity and relationally aggressive tactics across a wide age span, and to investigate possible gender differences across different stages of development. Past research has typically focused on the presence of gender differences in relational aggression within restricted age ranges. In fact, most previous studies on the topic have covered an age range of only two to three years while other investigations have covered a larger age span by investigating pupils in every other grade level. Both approaches have led to inconsistent findings with regard to between gender differences in relational aggression. This study seeks to clarify by investigating gender differences in third through twelfth grade pupils.

Additionally, prior research on relational aggression, perceived popularity, and sociometric popularity have heavily relied on convenience samples of suburban and urban youth obtained from locals surrounding institutions of higher learning; samples which have been of middle-to upper-middle-socioeconomic status as well. As a result, little is known about experiences of children and adolescents in rural areas. Furthermore, studies have implemented different procedures in measuring relational aggression, depending upon the age of participants: classroom-wide nominations are utilized for elementary aged pupils while grade-wise nominations have been used with middle and high school students, limiting comparability of findings across studies. Much prior research using the peer nomination procedures has employed a limited nomination

approach, which has the untoward side-effect of restricting the range of data (Terry, 2000).

To address these issues in previous research, the present investigation encompassed an expansive age range of grades three through twelve in a rural community that has been profoundly affected by the current economic downturn. An unlimited choice peer nomination instrument was utilized to avoid restricting the range of the data, as suggested by Terry (2000). Data were collected at the grade level, as opposed to the classroom level, to allow direct comparisons to be made between all cohorts investigated and to ensure that the same metric was used for all study variables.

The following research questions were explored:

**Research Questions & Hypotheses**

1. Are there significant differences within gender for engagement in aggressive behavior?

   $H_{1a}$: Females are more relationally aggressive than overtly aggressive.

   $H_{1b}$: Males are more overtly than relationally aggressive.

2. Are there between-gender differences in aggressive behavior?

   $H_{2a}$: Males are more overtly aggressive than are females.

   $H_{2b}$: Females are more relationally aggressive than are males.

3. Does the pattern of gender differences in aggressive strategies differ between primary and secondary levels?

   $H_{3a}$: For relational aggression, the difference between males and females decreases in the secondary, as opposed to primary, school level.

   $H_{3b}$: Both males and females exhibit increasing amounts of relational aggression in

the secondary, as compared to primary, school level.

H$_{3c}$: Both males and females exhibit decreasing amounts of overt aggression in the

secondary, as compared to primary, school level.

4. Are there significant differences in relational aggression levels by popularity type?

H$_{4a}$: Perceived popular individuals are more relationally aggressive than

sociometrically popular individuals.

5. Does the difference in relational aggression level by popularity type differ between

primary and secondary school levels?

H$_{5a}$: Sociometrically popular and perceived popular groups exhibit similar and

low levels of relational aggression during the primary school years.

H$_{5b}$: At the secondary school level, perceived popular students exhibit higher levels

of relational aggression than do sociometrically popular students.

H$_{5c}$: At the secondary level, sociometrically popular individuals continue to exhibit

low levels of relational aggression.

**CHAPTER 2**

**Review of Literature**

**Definition of Relational Aggression**

For an action to be considered aggressive, the aggressor must intend the action to cause physical or psychological harm to the victim, and the victim must also view the action in a negative light (Galen & Underwood, 1997). The majority of the literature on aggressive behavior has focused on overt physical aggression, particularly in males. However, "as far as aggression is conceived as a motivated sequence of behaviors resulting in the infliction of pain, then a deliberate snub and social exclusion may be functionally equivalent to a verbal insult or even to a physical blow" (Feshbach & Sones, 1971, p. 385). In fact, relational aggression can be defined as intentionally causing harm to others via actual or threatened damage to their peer relationships (Crick, 1995). Rumor spreading intending to cause peers to reject the target, withholding friendship in order to inflict harm, and excluding a child from an intimate group of friends are all poignant examples of relational aggression (Crick & Grotpeter, 1995).

However, Crick and her colleagues were not the first to investigate this form of aggressive behavior. Feshbach introduced the concept of indirect aggression in 1969, defined as the infliction of pain to the victim by means of rejection and exclusion and since that time, numerous other research teams have investigated this phenomenon. In Finland in the early 1990's Björkqvist and his colleagues undertook comprehensive study of what they also termed "indirect aggression," a central feature of which is the frequent inability of the victim to identify the aggressor, enabling the perpetrator to avoid retaliation from the target and the condemnation of others. This research group defined

indirect aggression as "noxious behavior in which the target person is attacked not physically or directly through verbal intimidation but in a circuitous way, through social manipulation" (Kaukiainen, Björkqvist, Lagerspetz, Österman, Salmivalli, Rothberg, & Ahlbom, 1999, p. 83). Behaviors such as gossiping, spreading vicious rumors in retaliation, intentionally breaking contact with the victim and befriending another as revenge, and advocating the social exclusion of another exemplify indirect aggression (Björkqvist, Lagerspetz, & Kaukiainen, 1992). Indeed, many of these same behaviors are representative of Crick's relational aggression. The distinction between the two concepts lies in the fact that relational aggression is comprised of both round-about and direct aggressive acts that solely focus on manipulation of interpersonal relationships (Crick, Nelson, Morales, Cullerton-Sen, Casas, & Hickman, 2001), while indirect aggression neglects explicitly confrontive acts such as telling a child that if he/she does X, Y will happen.

More recently, Xie and colleagues have further dissected Crick's relational aggression by classifying behaviors according to their degree of confrontation, distinguishing direct relational aggression and social aggression components (Xie, Swift, Cairns, & Cairns, 2002). Specifically, direct relational aggression refers to the infliction of damage to interpersonal relationships via confrontational strategies such as the perpetrator stating to the victim that he/she will discontinue the relationship unless he/she complies with the wishes of the aggressor. Social aggression, on the other hand, encompasses behaviors that intentionally disrupt relationships, but the identity of the perpetrator is unknown to the victim. For example, gossiping, social exclusion, stealing friends/romantic partners, the triangulation of relationships and betrayal of trust fall under

this umbrella. This distinction neatly encompasses indirect aggression within the umbrella of relational aggression under the auspice of social aggression.

As the previous discussion clearly demonstrates, the concepts of relational aggression, indirect aggression, direct relational aggression and social aggression are all closely interrelated as seen in Table 1. Therefore, for the purposes of the current study the term relational aggression will be utilized as an umbrella term to represent these intersecting concepts.

**Popularity**

The research literature characterizes 'popularity' as being comprised of two distinct dimensions: sociometric popularity and perceived popularity (LaFontana & Cillessen, 1999). Sociometric popularity, also known as social preference, is a measure of how much a child is liked by his/her peers (Cillessen & Rose, 2005), and is assed via peer nominations in which children identify most and least liked peers. A score is then derived by subtracting least liked from most liked nominations and then standardizing the resulting metric (Coie, Dodge, & Coppotelli, 1982). Perceived popularity, on the other hand, is the extent to which an individual is viewed as "popular" by their peer group and is assessed via peer nominations in which persons identify most and least popular peers. A score is derived by subtracting least popular from most popular nominations and standardizing the result (Parkhurst & Hopmeyer, 1998).

Table 1

*Summary and Comparison of Definitions of Relational Aggression*

| Definition | Method of Attack | Behavioral Examples | Perpetrator Identifiable |
| --- | --- | --- | --- |

| | | | |
|---|---|---|---|
| **Relational Aggression** | Infliction of harm to "others through damage to their peer relationships or through the threat of such damage (Crick, 1995 p. 313)." | Comprised of both roundabout as well as directly aggressive acts (Crick et al., 2001). | Rumor spreading intending to cause peers to reject the target, withholding friendship intending to inflict harm, and excluding a child from an intimate group of friends (Crick & Grotpeter, 1995). | Yes and no, depending on strategy employed (Crick et al., 2001). |
| **Indirect Aggression** | Harmful behavior in which an individual is targeted in a circuitous way, through social manipulation (Kaukiainen et al., 1999). | Roundabout way, through social manipulation (Kaukiainen et al., 1999). | Gossiping, spreading vicious rumors as revenge, intentionally breaking contact with the victim and befriending another as revenge, and advocating the social exclusion of another (Björkqvist, Lagerspetz, & Kaukiainen, 1992). | Victim is unable to identify the perpetrator (Kaukiainen et al., 1999). |
| **Social Aggression** | Those behaviors which intentionally disrupt relationships but where the but the identity of the perpetrator is unknown to the victim (Xie, Swift, Cairns, & Cairns, 2002). | Roundabout way, through social manipulation (Xie, Swift, Cairns, & Cairns, 2002). | Gossiping, social exclusion, stealing friends/romantic partners, the triangulation of relationships and betrayal of trust (components (Xie, Swift, Cairns, & Cairns, 2002). | Perpetrator is not identifiable by the victim (Xie, Swift, Cairns, & Cairns, 2002). |
| **Direct Relational** | The infliction of damage to interpersonal relationships via confrontational strategies (Xie, Swift, Cairns, & Cairns, 2002). | Directly aggressive acts (Xie, Swift, Cairns, & Cairns, 2002). | Perpetrator stating to the victim that he/she will discontinue the relationship unless he/she complies with the wishes of the aggressor. (Xie, Swift, Cairns, & Cairns, 2002). | Perpetrator is identifiable by the victim (Xie, Swift, Cairns, & Cairns, 2002). |

**Relationship between perceived and sociometric popularity.** While sociometric and perceived popularity are highly correlated (Andreou, 2006; Cillessen & Borch, 2006; LaFontana and Cillessen, 2002; Lease, Kennedy & Axelrod, 2002; Parkhurst & Hopmeyer, 1998; Rose, Swenson, & Carlson, 2004; Prinstein & Cillessen, 2003; Sandstrom & Cillessen, 2006), a considerable amount of research indicates that these two types of popularity are in fact quite distinct.

In one of the early studies on the topic, Parkhurst and Hopmeyer (1998) grouped middle-school students from a small community in the Midwest into three categories according to their level of perceived popularity: high (1 standard deviation above the mean), low (1 standard deviation below the mean) and average (everyone else). Less than one third of perceived popular individuals were also sociometrically popular (1 standard deviation above the mean). In fact, two discrete groups of perceived popular students emerged: those who were concurrently sociometrically popular and those who were not. This finding has been substantiated by several other research groups.

Sandstrom and Cillessen (2006) followed Caucasian middle-school students from fifth through eighth grades. Findings revealed that perceived and sociometric popularity were highly correlated at .74. However, in keeping with the earlier study of Parkhurst and Hopmeyer, Sandstrom and Cillessen also identified two types of high status children: one group being friendly, inclusive toward peers, and generally well-liked, while the other group of children evidenced high levels of both overt and relational aggression. Nevertheless, these two groups did overlap somewhat and it was possible, and even relatively likely, that a child may be simultaneously high on both characteristics.

Lease, Kennedy and Axelrod (2002), utilizing a rural sample of fourth through sixth grade students, identified a subgroup of perceived popular children who also enjoy elevated levels of social preference. This group of children did not evidence the elevated levels of relationally aggressive behavior that their perceived popular only counterparts did. For females only, perceived popular-only girls were reported to be more disruptive and less prosocial than females in the perceived and sociometrically popular classification. For both males and females, exclusion of others was positively related to perceived popularity but negatively linked with sociometric popularity. Engagement in bullying behaviors exhibited a similar relationship but for females only. Males, who were both perceived as popular and received high ratings of sociometric popularity shared high levels of social visibility with the perceived popular only group; however, they did not exhibit a comparable level of relationally aggressive behavior.

DeBruyn and Cillessen (2006) found in their study of 13 and 14 year old males and females in the Netherlands that there exist two distinct subtypes of popular peers: those who are high on sociometric popularity and prosocial behavior (prosocial-popular) and those who, while socially central and dominant, are not necessarily well-liked (popularistic).

Farmer and Rodkin (1996) found a similar pattern of results in their investigation of social network centrality among emotionally and behaviorally disturbed elementary school students and their classmates. Specifically, Farmer and Rodkin found that engagement in aggressive behaviors does not inevitably suppress social status. In fact, they identified two distinct groups of popular individuals; while both groups exhibited high athleticism they differed along the lines of prosocial and antisocial behavior: one

group was highly prosocial while the other exhibited antisocial characteristics and behaviors.

Despite these findings, evidence indicates the relationship between sociometric and perceived popularity is not static. Instead, it changes over the course of development and the timing of the changes differs by gender. For example, via a cross-sectional study of fourth through eighth grade students, utilizing unlimited nomination measures, LaFontana and Cillessen (2002) found that while sociometric and perceived popularity are highly correlated (r = .70), with age, children increasingly distinguished their own personal liking of an individual from their evaluation of that person's status among the peer group at large, coming to view popularity as a function of social network centrality, dominance and influence. Interestingly, aggression was viewed increasingly positively over time, and females made this transition much earlier than males.

Cillessen and Mayeux (2004) found in a longitudinal study of children ages 10 to 14 that the relationship between sociometric and perceived popularity declined over time for both males and females. By age 14, perceived and sociometric popularity evidenced no appreciable relationship for females but remained significantly correlated for males at this age.

Meanwhile, Cillessen and Borch (2006) found in a longitudinal study of students from grade 5 through high school that while sociometric and perceived popularity initially evidenced a positive association at the beginning of fifth grade, the correlation steadily decreased for both genders, but for very different reasons. In fact, these researchers reported a curvilinear correlation between sociometric and perceived popularity that was moderated by gender. For males, the initial correlation between the

two variables (r = .58) in grade six decreased to nonsignificance (r = .03) in grade 10 before bouncing back to a moderate effect (r = .30) by grade twelve. For females, while the magnitude of the correlation remained stable over time, it reversed in sign from .41 in sixth grade to -.49 at the end of twelfth grade. When this curvilinear relationship was not taken into account, Cillessen and Borch's findings paralleled those of Cillessen and Mayeux (2004). While these earlier findings have not been reanalyzed, it is certainly possible that an undetected curvilinear relationship was present in Cillessen and Mayeux's (2004) sample as well. Incidentally, perceived popularity status was much more stable than actual levels of liking from fifth through twelfth grades for both males and females.

Mayeux, Sandstrom and Cillessen (2008) found additional evidence to support this curvilinear relationship in their study of high school students. Specifically, for females perceived popularity in tenth grade negatively predicted social preference two years later while there was a positive relationship between sociometric popularity and perceived popularity for males across this same time span. It seems that for females, at least, being liked and being perceived as popular by their peer group are increasingly incompatible over time.

**Characteristics associated with popularity**

While it has only been in recent years that researchers have made the distinction between perceived and sociometric forms of popularity, a considerable body of research indicates that popular individuals, however it is defined, share common characteristics. Popular individuals are generally physically attractive, cooperative, and exhibit strong leadership qualities (Coie, Dodge, & Coppotelli, 1982; Elder, 1985). Among adolescents,

those who are considered popular by their peer group were well known, good looking and attended many social events (Youniss, McLellan, & Strouse, 1994). Elder (1985) found that, at least among his sample of middle school girls, those who were relatively well off economically, or socially visible were generally more popular than girls who did not possess these characteristics. Being a cheerleader, or the friend of a cheerleader, was a prime avenue for achieving social visibility and the popularity that ensues.

While popular individuals share some traits, there are some gender specific avenues to popularity as well. In an investigation of primarily Caucasian middle and upper-middle-class elementary students, Alder, Kless and Alder (1992) found that avenues to popularity are gender specific. Males attained high status via their success in relationships with girls, athletic ability, social skills, and perceived toughness, while females, achieved popularity by way of their parents' socioeconomic status, their own beauty and desirability to males, social skills and/or academic success. In fact, in the upper-elementary grades, popular males were much more defiant of adult authority than were less popular boys, while the socioeconomic status of their parents and degree of parental permissiveness were the two most powerful determinants of female popularity.

In a qualitative study of Scottish adolescents, Michell (1997) also found that popular boys were well dressed in the latest fashions, well groomed, attractive, and outgoing. For girls, on the other hand, popularity was linked with their spending power and appearance; these girls were attractive to boys and spent a considerable amount of time socializing with males, while also engaging in high levels of risk-taking behaviors such as smoking. Unpopular males and females tended to come from low socioeconomic backgrounds, possess limited academic skills and have little social finesse.

While there are gender specific avenues to popularity, there also exist routes specific to the type of popularity being considered.

*Attributes associated with sociometric popularity.* Sociometrically popular individuals are assertive, and viewed by their peers as kind, cooperative and trustworthy (Parkhurst & Asher, 1992). They are seen as supportive to others (Coie, Dodge, & Coppotelli, 1982). Furthermore, sociometrically popular individuals possess strong social skills, are friendly to a wide array of peers and behave respectfully toward others (Youniss, McLellan, &Strouse, 1994). Moreover, prosocial behavior is consistently associated with sociometric popularity (LaFontana &Cillessen, 2002; Rys & Bear, 1997). Sociometric popularity is also linked with a reduction in concurrent internalizing behaviors (Sandstrom & Cillessen, 2006). Sociometrically popular individuals are characterized as social, helpful and academically oriented (deBruyn & Cillessen, 2006).

In addition to being liked and exhibiting prosocial behaviors, sociometric popularity is positively related to desirable outcomes. For pre- and early-adolescent females social preference is positively correlated with reported academic functioning (Cillessen & Mayeux, 2007). Likewise, Hymel, Rubin and LeMare (1990) found that higher levels of sociometric popularity were associated with greater self-perceptions of children's self-competence.

*Features associated with perceived popularity.* The degree to which an individual is viewed as "popular" by their peer group has come to be known in the research literature as perceived popularity (Parkhurst & Hopmeyer, 1998) and perceived popular individuals have many characteristics in common with their sociometrically popular peers. However, some of these shared attributes are more predictive of perceived as

opposed to sociometric popularity. For example, while athletic ability is associated with both sociometric and perceived popularity, LaFontana and Cillessen (2002) found that among males athletic ability was more associated with perceived popularity than with sociometric popularity during the middle school years. Results further suggested that visibility and social impact are more predictive of perceived than sociometric popularity in this age group as well.

However, perceived popular individuals very frequently possess one quality not shared by their sociometrically popular peers: engagement in relationally aggressive behaviors. For example, deBruyn and Cillessen (2006) found that "popularistic adolescents" who were both socially central and dominant demonstrated characteristics such as antisocial behaviors, relational aggression, ostracizing, bullying, defiance to teachers, showing off and behaving in an arrogant manner. Interestingly, these popularistic students were viewed as having more power and influence over the peer group than prosocial-popular students.

In a study of upper-elementary aged students residing in a rural area, Lease, Kennedy, and Axelrod (2002) found evidence that, for both genders, perceived popularity was positively associated social visibility, possession of the expressive equipment of popularity (e.g. attractiveness and spending power) and relationally aggressive behavior. Ironically, disruptive and bullying behaviors were positively correlated with both least-popular nominations for boys and most-popular nominations for girls, suggesting an opposite pattern of association among these variables than has typically been found in the research literature. However, disruptive behaviors were highly correlated with like-least nominations for females. Relationally aggressive behaviors evidenced a considerably

stronger relationship with perceived, as opposed to sociometric, ratings of popularity for both genders.

Adler, Kless, and Adler (1992) also found that females with a higher socio-economic status and a high degree of parental permissiveness established themselves as major players in the popular crowd, manipulating those around them to establish their focal position in their peer group and to delineate group boundaries. It was these same girls who achieved high popularity that were most sensitive to the exclusionary tactics of gossip, 'meanness' and spreading of rumors. While most females, regardless of popularity status, acknowledged the elevated social position of the 'popular' girls, they actively expressed dislike for them.

Similar to high-status females, perceived popular males used their social expertise to their advantage, often engaging in manipulative, domineering and controlling behaviors such as turning would-be friends against each other as they competed for the popular boy's attention. These same boys used their savoir-fare to define and enforce social boundaries. Interestingly, with respect to cross-gender relationships, males, regardless of their popularity status, sought after the attentions of just a select group of popular girls, making it unlikely that a relatively less popular girl could increase her social standing merely by dating a high status male. Not ironically, these socially central boys and girls were precocious in their development of adult social characteristics such as understanding of group dynamics (Adler, Kless, & Adler, 1992).

Conversely, utilizing a sample of seventh through tenth grade students in West Berlin Germany, Hawley, Little and Card (2007) found that perceived popularity was related to social preference, friendship aspirations and resource control among both

genders. In this sample, perceived popularity was not related to disliking, overt aggression or relational aggression in either gender. This result is at odds with the majority of findings documented in the United States.

*Conundrum of popularity.* As previously discussed, individuals with sociometric and perceived popularity share many common characteristics and may achieve popularity through similar avenues. However, once an individual is labeled as 'popular' by the peer group, he or she is in a vulnerable position and may lose this coveted status if his/her behavior is not in line with the expectations of the group. Youniss, McLellan and Strouse (1994) uncovered this phenomenon during the late 1980's and early 1990's in their investigation of primarily Caucasian, middle-class adolescents. While perceived popular children did not view themselves as superficial or snobbish, they were, in large part, viewed that way by their peer group. Findings suggested that successfully maintaining popularity may require equilibration between gains in social status and negative sentiments from would-be rivals. Consistent with other research on the topic, females appeared to be considerably more invested in achieving and maintaining popularity status than were males. Other research groups have found similarly.

For example, Merten (1997) found evidence of this conundrum of popularity in his three-year longitudinal study of junior high school students. Merten found that popular students were in a precarious position and quite vulnerable to being labeled "stuck-up." If a popular individual became viewed as arrogant, conceited, or haughty, then not only would their popularity decrease, it might reverse and result in unpopularity. A girl might gain the reputation of being stuck-up not only through action, but inaction as well. For instance, while participants reported that popular girls are supposed to be nice,

if a popular girl failed to exhibit understanding of peer plights or support to a friend when needed, it was often interpreted as an intentional act designed to hurt the recipient. Indeed, if high-status individuals did not mediate competition and conflict among peers, they were often viewed as exhibiting an overtly aggressive interaction style toward peers, an attribution not made about less popular individuals exhibiting similar behavior patterns. Moreover, females known to be both popular and nice had to be constantly vigilant and consistently positive in their interactions with everyone, treating all members of their peer group as equals, regardless of their sociometric or perceived popular status.

Elder (1985) also found evidence that while popular girls were described as friendly and nice by a majority of peers, others reported that these same girls were stuck-up and unfriendly. In fact, a majority considered popular girls to be snobbish. Elder hypothesized that this was because popular girls failed to engage in interactions with their less popular female peers as frequently as desired because there were so many competing bids for their attention.

As research has demonstrated, perceived popular only individuals (i.e. those who occupied an elevated social position but were not concurrently well-liked) are frequently viewed as stuck-up and often have a reputation for engaging in actions intended to hurt the recipient. However, this reputation for meanness serves as a powerful deterrent to would be challengers for their social power. In fact, Lease Kennedy and Axelrod (2002) conjectured that girls who are perceived as popular may feel pressured to engage in socially aggressive behavior as a means of achieving and maintaining a popular status after more prosocial strategies have been unsuccessful. It seems that relational aggression is the weapon of the powerful (i.e. those perceived as popular by the peer group).

However, not all perceived popular youth engage in this form of behavior. In fact, age and gender convolute the equation. Therefore, it is important to have a thorough understanding of relational aggression, including outcomes/correlates, gender differences, and age effects before examining the complex interplay of all study variables: relational aggression, sociometric popularity, perceived popularity, school level and gender.

## Concurrent and Future Outcomes of Relational Aggression

**Victimization.** Not surprisingly, research demonstrates that relational aggression negatively impacts its victims at all age levels, at least in the United States. This finding was starkly portrayed by Card, Stucky, Sawalani, and Little (2008) by way of a meta-analysis of 128 studies investigating relational, social or covert aggression in persons under the age of 18. Results indicated that both direct and indirect aggression are more strongly associated with peer rejection in the United States than in other Western and non Western nations. Furthermore, physical and relational aggression were both associated with internalizing and externalizing difficulties.

Indeed, negative outcomes of experiencing relational victimization have been noted at all age levels. In fact, Crick, Casas, and Ku (1999) found via teacher report that during the preschool years, victims of both genders experience more internalizing problems than non-victims and also experience less positive peer relationships overall.

During the middle childhood period, relational victimization has been consistently associated with both internalizing and peer rejection difficulties. In a short-term longitudinal study of fourth grade children, Murray-Close, Ostrov, and Crick (2007) found that increased levels of relational victimization experienced by children of either gender were directly related to greater internalizing symptomatology. In a study of third

through sixth grade children, Crick and Nelson (2002) found that relational victimization within close friendships was related to concurrent internalizing, externalizing and social difficulties.

Furthermore, relationally victimized children are not only less accepted by other children than are their peers during this period of development, but experience more peer rejection as well (Crick, Casas, & Ku, 1999; Ostrov, Woods, Jansen, Casas, & Crick, 2004). Putallaz et al. (2007) found that teachers view relational victims as fearful of negative evaluation by others, appearing sad in, and avoiding, social situations, as well as evidencing characteristics of depression. These same students also reported feeling significantly lonelier than their less victimized peers. Moreover, Crick and Bigbee (1998) reported that, among fourth and fifth grade students, relational victimization is not only positively related to peer rejection, but is linked with submissive behavior and internalizing problems for both boys and girls as well. Incidentally, for females only, relational victimization was negatively connected with behavioral self-restraint.

Research on the outcomes of relational victimization in adolescence is limited. In a qualitative investigation of adolescent females in Australia, Owens, Slee and Shute (2000) found that victims of relational aggression experience serious internalizing problems such as anxiety, loss of self-esteem, fear for future relationships, reduced self-confidence and often do not understand why they were targeted. Furthermore, teachers report that some victims contemplate suicide while others change schools. However, their 'reputation' often precedes them. Additionally, these girls frequently become paranoid that others are talking about them, and engage in catastrophizing self-talk.

**Perpetrators.** It is well established that the victims of relational aggression experience adjustment difficulties in both the internalizing and externalizing domains. However, outcomes for perpetrators of relational aggression are not uniformly negative across age levels. Even during the preschool years, findings are mixed in regard to outcomes for perpetrators of relational aggression. However, outcomes seem to be moderated by both gender and coexisting engagement in overt aggression.

For example, Crick, Casas and Mosher (1997) found that while their peers considerably disliked both relationally and overtly aggressive children, relationally aggressive males enjoyed rather elevated levels of peer acceptance. In fact, for males, peer liking was positively predicted by both teacher and peer reported relational aggression. Meanwhile, in a semi-structured observational study of European American preschool children, Ostrov, Woods, Jansen, Casas, and Crick (2004) found that relational aggression was linked with peer exclusion for males but not females. Likewise, Crick, Ostrov, Burr, Cullerton-Sen, Jansen-Yeh, and Ralston (2006) found that when level of physical aggression was held constant, relationally aggressive behaviors continued to predict future peer rejection for females only.

Similar results have been demonstrated during the middle childhood period. For instance, in her ground breaking early work, Crick (1996) discovered that both relational and overt aggression predict future peer rejection for both boys and girls. However, some intriguing findings emerged. For females, relational and physical aggression were negatively associated with prospective peer acceptance and relational aggression predicted peer rejection over and above overt aggression. Additionally, teacher ratings indicated that overt aggression was negatively related to future peer liking and positively

associated with future peer rejection, but for girls only. For males, peer rated relational aggression was not predictive of future adjustment after overt aggression was accounted for, while teacher reported relational aggression was predictive of future peer liking.

In a study published just one year earlier, Crick and Grotpeter (1995) reported similar results. Specifically, they found evidence that relationally aggressive children are less preferred by their peers than are non-relationally aggressive children. Not only are relationally aggressive girls are less accepted by peers than non-relationally aggressive girls or boys of any relational aggression status but they experience more social isolation as well. In fact, relationally aggressive girls reported significantly more loneliness and less acceptance by the peer group than do others. However, relationally aggressive children of both genders reported significantly greater levels of depressive symptoms than non-relationally aggressive persons.

Crick (1997) expanded on these findings. For instance, among middle-childhood and preadolescent pupils, teachers indicated that relationally aggressive boys experience more social-psychological adjustment problems than do relationally aggressive girls. Teachers also reported that relationally aggressive children exhibit significantly more internalizing and externalizing symptoms than their nonaggressive counterparts.

Hennington, Hughes, Cavell and Thompson (1998) found similarly. Among teacher-nominated aggressive elementary pupils, extremely overtly aggressive males were not likely to experience peer rejection unless they were concurrently very relationally aggressive as well, although both forms of aggression were associated with negative peer evaluations and inversely related to peer liking. Aggressive girls, however,

were reported to be withdrawn and exhibit depressive symptomatology regardless of the form of aggression practiced.

Roach and Gross (2003) found, in an investigation of third and fourth grade pupils, that those who were reported by peers to engage in significant levels of relational aggression were also viewed as being involved in fighting in general much more frequently than their peers who did not utilize relationally aggressive strategies. Furthermore, high levels of peer rated relational aggression were concurrently related to low social preference, a high number of detentions, and elevated teacher ratings of depression.

Moreover, Putallaz, Grimes, Foster, Kupersmidt, Coie and Dearing (2007) found that among 4th grade children, those who exhibit high levels of relational aggression were significantly less likely to be described as shy by their peers. Teachers reported that these children generally did not avoid social situations. Interestingly, perpetration of relational aggression was unrelated to concurrent loneliness, social anxiety, externalizing difficulties, peer rejection or depression in this sample; and relational aggressors were viewed as socially competent by peers.

In a study of rural, urban, and suburban children, Werner and Crick (2004) found that while physical aggression significantly predicted social rejection for both genders over time, this relationship was considerably stronger for females as opposed to males. However, evidence suggested that relationally aggressive children, especially boys, have low levels of sociometric popularity.

Indeed, the relationship between relational aggression and internalizing difficulties, as well as peer rejection, is well documented during the middle childhood

period. Furthermore, relational aggression has consistently been linked with both psychosocial adjustment difficulties and elevated social status during adolescence. For example, among clinically referred youth, ages 10 to 17, in British Columbia, Canada, relational aggression was related to negative self-representation, and this association was stronger for females (Moretti, Holland, & McKay, 2001). For both genders, assaultive behaviors were predicted by poor self-esteem and low self-efficacy in this sample.

On the other hand, relationally aggressive behavior during adolescence has been inconsistently linked with academic skills deficits and early school withdrawal. For example, Cillessen and Mayeux (2007) found that among pre- and early-adolescent females, relationally aggressive acts are related to concurrent low academic performance in grade 6, but not for males. Relationally aggressive males reported more optimistic academic and social expectations for high school than did their less aggressive peers and, surprisingly, overt aggression was also related to positive expectations in the arena of social functioning during high school. Meanwhile, Xie, Cairns, and Cairns (2007) found that while physically aggressive behavior predicts school dropout, engagement in social aggression does not consistently predict early withdrawal from education.

Despite its relationship with adverse outcomes during adolescence, relational aggression is also positively correlated with peer perceived popularity (Andreou, 2006; LaFontana & Cillessen, 2002; Rose, Swenson & Waller, 2004; Sandstrom & Cillessen, 2006) and this relationship will be discussed in detail in a subsequent section.

Relational aggression has also been linked with undesirable outcomes in adulthood. For example, Ostrov and Houston (2008) studied the concepts of proactive relational aggression, defined as those relationally aggressive acts that are utilized as a

means to an end, and reactive relational aggression, defined as relationally aggressive behavior exhibited in response to an actual or perceived threat among a sample of emerging adults. These researchers found evidence that while reactive relational aggression is not appreciably linked with antisocial personality features, it is associated with features of Borderline Personality Disorder. Similar to physical aggression, proactive relational aggression is linked with antisocial personality disorder symptomatology.

Additionally, Werner and Crick (1999) found that relational aggression was associated with peer rejection among college students of both genders. While only egocentric behavior was linked to relational aggression for men, relationally aggressive females displayed a wide range of internalizing and externalizing symptoms such as stimulus seeking, self-harm behavior, bulimic symptoms, depression and identity problems. Relational aggression was also negatively related to concurrent life satisfaction. Meanwhile, in a study of intercollegiate athletes, utilizing a team-based peer nomination procedure, Storch, Werner and Storch (2003) found that peers frequently rejected males who exhibited relationally aggressive behavior while relationally aggressive females reported alcohol problems.

Storch, Bagner, Geffken and Baumeister (2004) found in a self-report study of undergraduates, that relational aggression was significantly related to concurrent loneliness, alcohol problems, drug problems and depression for both genders; however, relational aggression was associated with social anxiety for women only. In contrast, Xie, Swift, Cairns and Cairns (2002) found that during the period of adolescence and

emerging adulthood relational aggression does not significantly increase risk of concurrent or future psychosocial maladjustment after accounting for other risk factors.

While a positive relationship between perceived popularity and relational aggression has been substantiated in middle childhood and adolescence, this author was unable to locate any studies that investigated the relationship between relational aggression and perceived popularity during adulthood; perhaps this is because the social groups of adults are more diverse and popularity is much more difficult to define in this context.

In summary, research has clearly shown that the perpetration of relational aggression is related to negative outcomes at all age levels.

**Gender Differences in Levels of Aggression**

It is frequently asserted that males are more aggressive than females. Indeed, when looking at only overt aggression this gender difference is glaring and is an undisputed fact within the research literature (Archer, 2004; Björkqvist, Lagerspetz, Kaukiainen, 1992; Butovskaya, Timentschik, & Burkova, 2007; Card, Stucky, Sawalani, & Little, 2005; David & Kistner, 2000; Duncan & Owen-Smith, 2006; Heyman & Legare, 2004; Hines & Fry, 1994; Musher-Eizenman, Boxer, Danner, Dubow, Goldstein, & Heretick, 2004; Ostrov & Crick, 2007; Putallaz, et al., 2007; Roach & Gross, 2003; Salmivalli & Kaukiainen, 2004; Salmivalli, Kaukiainen, & Lagerspetz, 2000; Sandstrom & Cillessen, 2006;  Sears, 1961; Sebanac, 2003; ). In fact, in a recent meta-analysis incorporating studies that spanned 16 nations, Archer (2004) found a large and consistent difference in overt aggression favoring males. However, when both physical and relational aggression are assessed, males and females are classified as engaging in some

form of aggression  with equal frequency (Crick & Grotpeter, 1995; Tomada & Schneider, 1997).

**Gender Differences in Relational Aggression**

Early work on what we now term relational aggression revealed that females are much more likely than males to exclude and even actively reject a newcomer to the group in a laboratory setting (Feshbach, 1969). Furthermore, Lowenstein (1978) found that females are more likely than males to use psychological types of bullying to inflict pain on their victims. In fact, Lowenstein's (1978) concept of 'psychological bullying' closely parallels Crick's (1995) definition of relational aggression. While gender differences in relational aggression are somewhat murky, there is evidence that, at some age levels, females are more relationally aggressive than males.

**Early childhood.** During the preschool years an overwhelming majority of the evidence indicates that females perpetrate substantially more relational aggression than do males. For example, in an 18-month observational longitudinal study of urban children during the early childhood period, Crick, Ostrov, Burr, Cullerton-Sen Jansen-Yeh and Ralston (2006) found evidence that, in general, girls exhibit higher levels of relational aggression than boys. Furthermore, if relational aggression were not assessed as a component of violence in general, as many as 50% of young aggressive girls would not have been identified! These findings have been corroborated by others.

In a study of intact middle-class Caucasian families, Ostrov and Crick (2007) found that preschool girls are more relationally aggressive than boys. Similarly, in a multi-method study comparing teacher ratings, peer nominations and direct observations of relational and physical aggression among preschool children, McEvoy, Estrem,

Rodriguez and Olsen (2003) found that these three evaluation methods converged, indicating that females engage in higher rates of relational as opposed to physical aggression while males demonstrate the opposite pattern. Additionally, in their investigation of three to five year old children attending daycare centers at both ends of the socioeconomic spectrum, Bonica, Arnold, Fisher, Zeljo, and Yershova (2003) found that females exhibit more relational aggression than do males. Likewise, in an investigation of an urban, middle to upper-middle socioeconomic status early childhood sample, Nelson, Robinson and Hart (2005) found that teachers perceived girls to be more relationally aggressive than boys.

Utilizing a longitudinal sample of children attending a university supported preschool Ostrov, Gentile and Crick (2006) found that, as a group, females exhibit higher levels of relational aggression than males. Sebanac (2003) also found that females utilize relational aggression significantly more often than do males. Similarly, in a sample of middle-class, European American preschool children, Ostrov, Woods, Jansen, Casas, and Crick (2004) used a semi-structured observation and found that girls both perpetrated, and were victimized by, relational aggression to a significantly greater extent than were boys.

However, while the preponderance of the evidence indicates that females are more relationally aggressive than males during the early childhood period, this gender difference has not always been substantiated across informants. Specifically, in a 1997 study of children ages 3.5 to 5.5, utilizing a limited-choice peer nomination procedure, Crick, Casas and Mosher found that while teachers perceive females to be more relationally and less overtly aggressive than males at this age, the peer group viewed boys

and girls as exhibiting similar levels of both types of aggressive behavior.  Hart,   Nelson, Robinson, Olsen, and McNeilly-Choque (1998) found similarly utilizing a sample of 207 ethnic Russian preschool children in the former Soviet Union. Specifically no gender differences in relational aggression via preschool teachers' rating were identified. Cross culturally,  Shahim found that Iranian boys and girls, aged three to seven, engage in similar levels of relational aggression (2008).

On the other hand, McEvoy et al. (2003) found the opposite, incorporating observations, teacher ratings and peer nominations. Specifically, they found that boys actually engage in considerably higher amounts of relational aggression than do girls, at least in their primarily Caucasian preschool sample.

**Middle Childhood.** As children transition into the K-12 school system and the period of middle-childhood, sex differences in relational aggression continue to be apparent and to favor females. In their seminal 1995 study of third through sixth grade children, Crick and Grotpeter found, that while males self-disclose higher rates of aggression, both overt and relational, than do females, peer reports indicate that females perpetrate significantly more relationally aggressive behavior than males. Furthermore, using a person-centered approach, these researchers found that the gender composition of aggression-type groupings differed by gender; specifically, the relational aggressive only group was primarily made up of females while the overt aggression category included a majority of males. The combined overt and relationally aggressive group was composed of male and female students.

Rys and Bear (1997), using similar research methodology, did find that, among third and sixth grade students, females were most frequently classified as relationally

aggressive only, and males who exhibited elevated levels of relational aggression tended to display significant amounts of overt aggression as well. Similarly, Tomada and Schneider (1997) found that the relationally aggressive only cluster contained a significant number of females while males were over-represented in the overt and combined groups.

Using a dimensional approach to the study of relational aggression, Crick (1997) found that girls exhibited higher levels of relational aggression than boys in her sample of third through sixth grade students in the Midwest.  Similarly, in a 1988, multi-method study of 11- and 12-year-old Finnish children, Lagerspetz, Björkqvist, and Peltonen found that females engaged in increased levels of relational aggression as opposed to males. Moreover, in a study of urban fourth and fifth grade students of lower to middle socioeconomic status, Murray-Close, Crick and Galotti (2006) found that females engage in higher levels of relational aggression than boys, via peer nomination procedures.

Tapper and Boulton's (2004) multi-method observational study involving a sample of 7 to 8 and 10 to 11 year olds in Great Brittan further supports the contention that females utilize more relational aggression than do males. Indeed, girls tended to evidence higher rates of relational aggression than boys. Unfortunately, however, their results were not statistically significant. Björkqvist, Lagerspetz, and Kaukiainen (1992) did uncover some intriguing findings in their investigations of Finnish school children; principally that while relational aggression appears with equal frequency among 8-year-old boys and girls, it is much more prevalent among females at age 11; however, both genders experienced a behavioral spike in relational aggression around this age.

Meanwhile, in a mixed-ethnicity sample drawn from both public and private elementary schools Heyman and Legare (2004) found among upper-elementary girls only, relational aggression was perceived to be more characteristic of females as opposed to males. Across different nations, Rivers, and Smith (1994) obtained nonsignificant results at the primary school level (ages 8-11) in their study of English pupils for the hypothesis that females engage in more relationally aggressive behavior than do males. However, this contention was supported at the secondary level (ages 11-16) as females recounted significantly more episodes of relational aggression than did males.

While most studies of the phenomenon of relational aggression have been cross sectional, one study employed a longitudinal design. Park, Essex, Waxler, Armstrong, Klein, and Goldsmith (2005) followed 207 participants from birth and found that females engage in considerably more relational aggression than physical aggression in grades 1, 3, and 5. Meanwhile, while boys in preferentially engage in overt aggression.

In stark contrast, a considerable number of researchers have found that males exhibit increased levels of relational aggression when compared with females during this developmental period. In fact, Landau, Björkqvist, Lagerspetz, Österman, and Gideon (2002) found that Israeli males, ages 8, 11, and 15, exhibit higher levels of relational aggression than do females of the same age at all age levels studied. Likewise, DeRosier and Thomas (2003) found that males in the upper elementary grades engaged in more relational aggression and bullying than did females. Similarly, in a 2000 study of Caucasian and African American participants, David and Kistner found that males were more frequently endorsed by peers as perpetrators of relationally aggressive behavior than were females. Furthermore, in their investigation of Italian third and fourth grade

students Tomada and Schneider (1997) found that, according to peer nominations, males are more relationally aggressive than females.

In addition, in a mixed-ethnicity sample drawn from both public and private elementary schools, Heyman and Legare (2004) found that children perceived males to be more aggressive than females in all domains (overt, relational and verbal). Likewise, Roach and Gross (2003) found that while males were generally more aggressive than females, males who seemed inclined toward externalizing problems engaged in slightly higher levels of relational aggression than the female population studied.

In a person-centered study of second and third grade pupils nominated by their teachers as aggressive, Henington, Hughes, Cavell and Thompson (1998) found that whereas 30 percent of aggressive boys were rated by peers as extremely relationally aggressive only, 12 percent of girls exhibited similar severe levels of relational aggression. Indeed males were generally rated by peers as both more relationally and overtly aggressive than females. Boys were five times more likely to be classified in the overtly aggressive and combined overtly and relationally aggressive groups as opposed to females.

During the developmental period of middle childhood, Rys and Bear (1997) have reported the only null findings to date where no gender differences in overall levels of relational aggression have been identified.

**Adolescence.** During the period of adolescence, gender differences in relational aggression become less clear. While some researchers unearth evidence favoring females, others find differences in the male direction or no gender differences whatsoever. The findings that indicated a higher level of relational aggression for girls are reviewed first.

In a study of 9<sup>th</sup> grade Finnish adolescents, Salmivalli, Kaukiainen and Lagerspetz (2000) found that girls engage in more relational aggression than do boys. Likewise, Björkqvist, Lagerspetz, and Kaukiainen (1992) found that girls at age 15 exhibit increased levels of relational aggression compared to boys. Xie, Swift, Cairns and Cairns (2002) obtained similar results in their longitudinal study of African American pupils from middle childhood through the end of high school, finding that girls utilize more social and direct relational aggression than do boys.

Additionally, in a study of early-adolescents, Walcott, Upton, Bolen and Brown (2008) found that females are more relationally aggressive than males; however, their findings did not reach typically agreed upon levels of significance. Prinstein and Cillessen (2003) found no statistically significant gender effect for relational aggression although girls engaged in more reputational attacks than did males. Galen and Underwood (1997) found that grade 10 females evidence considerably greater quantities of relationally aggressive behavior than do males.

Furthermore, in the former Soviet Union, using a sample of 11 to 15 year-old adolescents, Butovskaya, Timentschik, and Burkova (2007) found that females exhibited greater levels of relational aggression as opposed to males. Similarly, in a study of all 6<sup>th</sup> grade children in a small, rural school district, Macgowan, Nash and Fraser (2002) found that females exhibited higher levels of relational aggression than males.

Building on previous research, Mayeux and Cillessen (2008) obtained evidence that females utilize relational aggression more frequently than do males in their longitudinal sample of high school students followed from the beginning of their freshman year until graduation. Moreover, utilizing a clinic referred sample in British

Columbia, Canada, Moretti, Holland, and McKay (2001) found that pre- and early to late adolescent females exhibited higher levels of relationally aggressive behavior than did boys, despite the fact that levels of overt aggression were commensurate across gender. Moreover, Sandstrom and Cillessen (2006) found that girls in the eighth grade exhibit higher levels of relational aggression and anxiety than do boys.

There are also a number of studies that found no gender difference in relational aggression. Salmivalli and Kaukiainen (2004) found that while on average, girls do not engage in more relational aggression than boys, there does exist a minority of females who engage in extremely high levels of aggression, primarily of the relational form. In fact, when using a person-centered-approach, females most often fall in the non-aggressive or relationally aggressive categories.

Similar to the findings of Salmivalli and Kaukiainen (2004), Musher-Eizenman, Boxer, Danner, Dubow, Goldstein, and Heretick (2004) found no gender difference in self-reported relational aggression in both urban and suburban settings. Additionally, Putallaz et al. (2007) found that while girls studied utilized relational, as opposed to overt, aggression as their preferred mode of aggression, general levels of relational aggression did not differ between males and females. Likewise, utilizing a sample of 11- and 12-year-old Canadian children, Bosacki (2003) found that while peers perceived girls to engage in higher levels of relational aggression than boys, teacher reports indicate males and females are perceived to display comparable levels of relationally aggressive behavior.

In addition, utilizing a sample of 60 middle school students from African American, Caucasian and Latino backgrounds Culotta and Goldstein (2008) found no

appreciable gender differences in levels relational aggression via a peer rating assessment. Meanwhile, Schoiack-Edstron, Frey, and Beland (2002) found that males and females implemented social exclusion tactics with equal frequency in their sample of American and Canadian middle school students.  Similarly, Tomada and Schneider (1997) found that males and females engage in similar levels of relational aggression. In an investigation of a high-risk sample of children ages four to eighteen, Tiet, Wasserman, Loeber, McReynolds and Miller (2001) found that males and females engaged in comparable levels of relational aggression. Furthermore, when using the extreme-groups paradigm, equal numbers of boys and girls were categorized as relationally aggressive by these researchers.

In contrast, during the adolescent years, some research indicates that males exhibit greater levels of relational aggression than do females, and this finding has been documented most consistently outside the United States. In a study of Finnish preadolescent and adolescent males and females, Salmivalli and Kaukiainen (2004) found that, irrespective of age, males engage in more physical, verbal and relational aggression than do females. Additionally, in a similar study of 11-, 14-, and 17-year-old Finnish youth, Lindeman, Harakka, and Keltikangas-Jarvinen (1997) found that at all age levels males exhibited higher levels of relational aggression than did females. Likewise, in a German study of gender differences in relational aggression involving 1,723 adolescents, mostly from upper-middle class families, Little, Jones, Henrich and Hawley (2003) found a slight gender difference in the male direction. Although findings did not reach typically accepted significance levels, Walcott, Upton, Bolen and Brown (2008) found that males in the United States tend to engage in higher levels of relational aggression than females.

**Adulthood.** Gender differences in engagement in relational aggression become more convoluted in adulthood and samples studied have been almost exclusively comprised of undergraduate students, a group that is hardly representative of the population at large. While Campbell, Sapochnik, and Muncer (1997) found, in a sample of British undergraduate students, that females exhibited significantly higher levels of relational aggression than males; Storch, Bagner, Geffken and Baumeister (2004), in a convenience sample of undergraduate students, found that males self-reported higher rates of relational aggression than did females. Furthermore, in a self-report study of university undergraduates who were enrolled in health education or educational psychology classes, Loudin, Loukas and Robinson (2003) found that males are more relationally aggressive than females; interestingly, individuals who exhibited high levels of overt aggression were very likely to exhibit elevated levels of relational aggression as well.

On the other hand, in a study of undergraduate students in the United States, Duncan and Owen-Smith (2006) found no gender differences in self-reported relational aggression, while Archer (2004) found no self-reported gender differences in relational aggression for adults. Green, Richardson and Lago (1996) found a similar result in their investigation of U.S. undergraduate students; specifically these researchers found that males and females self-reported comparable levels of relational aggression.

In the only study to explore relational aggression among adults outside of the undergraduate cohort, Murray-Close, Ostrov, Nelson, Crick, and Coccaro (2010) found no self-reported gender differences in overall levels of relational aggression in their sample of 1,387 men and women.

**Relationship between Relational Aggression and Age**

A dimensional approach looks at age and relational aggression as both being on a continuum. Research using the dimensional approach indicates that the relationship between age and relational aggression is not linear. In fact, a curvilinear relationship seems to exist between these two variables such that relational aggression increases with age from the period of early childhood through mid-adolescence before decreasing as young men and women become adults.

This can help to explain unclear findings. For example, in a study of ethnic Russian children during the early childhood period, Hart et al. (1998) found that child age was positively related to increased relational aggression. Ostrov, Crick and Stauffacher (2006) found similarly in their one year observational study of preschool-aged sibling pairs who were separated in age by roughly two years. Specifically, findings indicate that older siblings tended to exhibit greater levels of relational aggression than their younger siblings. On the other hand, in their two-year longitudinal study of preschool children, Crick, Casas, and Mosher (1997) found that level of relational aggression, when assessed by both teacher and peer nomination measures, did not vary with age in their comparisons of junior (mean age 4 years) and senior (mean age 5 years) preschool classrooms. Similarly, Shahim (2008) found no age differences in the utilization of relational aggression in the Iranian preschool children age 3 through 7 via teacher report.

While age differences in relation aggression levels are not always readily apparent in the early childhood period, research shows that as children transition from preschool to middle childhood, relational aggression is on the rise. For instance, in a large, four year longitudinal study of Canadian preschool children, Vaillancourt, Brendgen, Boivin, and

Tremblay (2003) found that children of both genders exhibit relational aggression as they transition into the middle childhood period. Furthermore, parental report indicates that children were relatively stable in their mode of aggression during this transition.

However, Park, Essex, Waxler, Armstrong, Klein, and Goldsmith (2005) found that a child's level of aggression relative to his/her same age peers tends to remain unchanged, although both relational and overt aggression decreased over time from grades one through five as reported by parent, teacher, and self-reports. Consistent with previous findings females reported a sharper decrease in overt aggression over time when compared with males.

Yet again, males and females exhibit increased relational aggression as they transition into adolescence. For example, Xie, Farmer, and Cairns (2003) found in their ethnographic study of inner-city African American children in grades one, four, and seven that regardless of gender, relationally aggressive behavior increased from grades one to seven; however levels of relational aggression were relatively stable between first and fourth grade indicating that this increase in relationally aggressive behavior occurred as children transitioned out of middle childhood and into adolescence. Indeed, Xie, Cairns and Cairns (2002) also found evidence that relational aggression is more frequently used by both males and females during seventh than fourth grade. What is more, in their short-term, longitudinal study of fourth grade pupils, Murray-Close, Ostrov, and Crick (2007) found evidence to support the conclusion that relational aggression rises during the transition into adolescence. Specifically, they found evidence that relational aggression increased during the course of the fourth grade year, but for females only.

This pattern of results seems to replicate across the pond as well. In their study of British children during the periods of middle childhood and early adolescence, Tapper and Boulton (2004) found that all forms of aggression, including relational aggression, increase with age during grades three through six but decrease over time thereafter. However, this age related decrease in aggressive behavior was considerably stronger for overt than for relational aggression.

While relational aggression levels continue to increase as children become adolescents, the relationship between relational aggression and age shifts during mid-adolescence so that overall levels for both genders begin to decline. However, exactly when this transition happens appears to be gender specific. For instance, Archer (2004) found via a meta-analysis of existing research that when relational aggression is measured via peer report the gender gap widens from ages eleven to seventeen, with females exhibiting appreciably more relational aggression than males. Moreover, as a result of their four year longitudinal study of high school students in the United States, Mayeux and Cillessen (2008) found that while grade nine females evidence considerably higher levels of relational aggression than males, the level of relational aggression exhibited by females remains relatively stable during the high school years. Males, on the other hand, exhibit a steady increase in relationally aggressive behaviors throughout this period and approximate the female level of relational aggression by high school graduation. Additionally, Tiet et al. (2001) found that relational aggression was at its highest levels, for both genders, during adolescence. However, no significant age effects on total relational aggression level in their high-risk sample of males and females ages 4 to 18 were reported.

This pattern seems to hold across Westernized cultures; however, the exact timing of the transition, and mechanisms at work, do seem to vary by country. For example, in a study of 11-, 14-, and 17-year-old youngsters in Western Finland, Lindeman, Harakka, and Keltikangas-Jarvinen (1997) found that 14-year-olds engaged in higher levels of what this research team termed "aggression" (a composite of both overt and relational aggression) than either 11- or 17-year olds. For males, aggression level at age 17 was similar to that exhibited at age 11. Females, on the other hand, engaged in lower levels of aggression at age 17 than at age 11.

Landau, Björkqvist, Lagerspetz, Österman, and Gideon (2002) found similarly in their study of 8-, 11-, and 15-year-old Israeli children. Specifically, they found evidence that aggression developed curvilinearly across the period of middle childhood and into adolescence. However, the greatest levels of both perpetration and victimization for verbal, physical and relational aggression occurred within the 11-year-old age group and the lowest levels occurred within the 15-year-old age group. Moreover, the female level of aggression at age 8 was identical to that exhibited at age 15. While relationally aggressive for males also decreased between the ages of 11 and 15, males did exhibit slightly higher levels of relational aggression at age 15 than did females.

In their investigation of upper-middle class German adolescents, Little, Jones, Henrich and Hawley (2003) found that during mid-to-late adolescence males and females exhibit comparable levels of relational aggression. However, in their sample males did not exhibit the curvilinear relationship between age and relational aggression. In fact, across grades five through ten, males exhibited steady levels of relational aggression while females evidenced a steady decline in relational aggression over time.

Indeed, dimensional comparisons of relational aggression and age reveal a curvilinear relationship between the two variables. More important is how these two phenomenon interact within the individual. Cote, Vaillancourt, Baker, Nagin, and Tremblay (2007), using a person-centered approach, found evidence of a gender specific curvilinear relationship between relational aggression, overt aggression and age that is apparent during the period of early childhood. These researchers followed a large cohort of Canadian preschoolers from age two at initial assessment, over the span of six years and found that highly aggressive youngsters, regardless of gender, tend to exhibit both physical and relational forms of aggression. In fact, it was much more likely that a highly physically aggressive child would exhibit co-morbid relational aggression than vice-versa. Those children who evidenced low levels of physical aggression during preschool showed a low proclivity to exhibit relational aggression when transitioning from preschool to elementary, while children who exhibited substantial levels of physical aggression during the early childhood period tended to exhibit increasing levels of relational aggression with age. Although a group of children evidenced a trajectory of decreasing rates of physical aggression during the preschool years, a subcomponent of this group simultaneously exhibited a significant increase in relational aggression between the ages of four and eight years. Almost twice as many females as males evidenced this pattern of decreasing physical aggression and increasing relational aggression.

Research clearly indicates, through the convergence of both person-centered and dimensional approaches, that a curvilinear relationship between relational aggression and

age does exist. However, research has not provided a clear answer to the question of when age-related changes in relational aggression occur within the population at large.

**Relationship Between Popularity and Aggression**

Now that the reader has a thorough understanding of relational aggression, including outcomes and gender differences, we turn our attention to the relationship between popularity types and aggressive behavior.

Two groups of popular students have been delineated by the research literature: those who are aggressive and vying for position (perceived popular) and those who are prosocial and likeable (sociometrically popular). These two groups of students seem to differ on major dimension: engagement in prosocial versus aggressive behavior.

Cairns, Cairns, Neckerman, Gest and Gariepy (1988) studied a group of suburban and rural boys and girls who were in the fourth and seventh grades. While aggressive adolescents generally experienced lower levels of perceived popularity and sociometric popularity than matched-controls, they typically had a solid network of friends and were named as best friends to the same extent as control subjects. For both males and females, individuals tended to befriend those who exhibited levels of aggression similar to their own. However, aggressive students appeared unaware of how they were viewed by the larger peer group and rated themselves to be as popular as control subjects.

Many other researchers have found that perceived popularity status is positively correlated with relationally aggressive behavior. In fact there seems to be an inverse relationship between aggression and perceived versus sociometric popularity status. For example, using a sample of 10th grade students, Prinstein and Cillessen (2003) found that

while aggressive behavior is infrequently associated with high levels of sociometric popularity, it is very much related to elevated levels of perceived popularity.

**Relationship between sociometric popularity and aggression.** In fact, Sandstrom and Cillessen (2005) found that when level of peer perceived popularity was held constant, sociometric popularity was significantly positively associated with friendship, social inclusion, peer affiliation, prosocial behavior and leadership while it was negatively related to overt, relational or verbal aggression among their sample of middle school students.

However, while level of prosocial behavior is a discriminating factor between sociometrically popular and unpopular preadolescent females (LaFontana & Cillessen, 2002), it does not appear that children with low levels of sociometric popularity are not blatantly unfriendly to peers but rather that they are merely less outgoing and positive in their orientation (Renshaw & Asher, 1983). Indeed, sociometrically unpopular peers are not wholly disliked within the peer group at large, while sociometrically popular peers are not universally well liked (LaFontana & Cillessen, 1999).

Hymel, Rubin and LeMare (1990) followed a group of children from second to fifth grade and found that students who were overtly aggressive and sociometrically unpopular in grade two tended to also be unpopular and exhibit significant externalizing difficulties three years later. Furthermore, externalizing behaviors and low levels of sociometric popularity tended to co-occur at each age level. Indeed, it seems that sociometrically unpopular peers exhibit low levels of prosocial behavior in conjunction with elevated levels of aggression.

**Relationship between perceived popularity and aggression.** Perceived popular individuals, on the other hand, seem to prefer a peer interaction style characterized by engagement in aggressive behavior. For instance, among a sample of fifth grade students, Sandstrom and Cillessen (2006) found that perceived popularity was considerably positively related to both overt and relational aggression. Rodkin, Farmer, Pearl and Van Acker (2000) also found, in their study of fourth through sixth grade boys in inner city Chicago and rural North Carolina, that highly aggressive boys are, at times, among the ranks of the most popular and socially central children in the classroom, similar to popular prosocial children. This was particularly true for African American boys in a classroom setting where they were an ethnic minority. However, preferred forms of aggression seem to be impacted by both age and gender.

Utilizing unlimited choice perceived popularity and sociometric nominations with a sample of fourth through eighth grade students, LaFontana and Cillessen (2002) found that perceived popular persons were generally viewed as physically and relationally aggressive by peers while unpopular peers were reported to be socially isolated. For females, popularity and engagement in relational aggression were most strongly correlated in sixth grade and the relationship between these variables began to wane in the seventh and eighth grades. While males exhibited a similar pattern of effects, the association peaked in seventh and eighth grades and then began to level off to some extent. In fact, males associated perpetration of relational aggression with unpopular peers in fourth through sixth grade; however, the pattern reversed in seventh and eighth grades as boys then viewed popular peers as more relationally aggressive than unpopular peers. For females, on the other hand, popular and unpopular peers were reported to

engage in similar levels of relational aggression in fourth and fifth grade; however, relationally aggressive behavior was more strongly liked with popularity in sixth through eighth grades. Furthermore, peers viewed the bullying behavior of popular peers more negatively than that of unpopular peers (LaFontana & Cillessen, 2002).

In a study of primarily Caucasian students in grades three, five, seven and nine in the Midwestern United States, Rose, Swenson and Waller (2004) found that overt and relational aggression were inversely linked with perceived popularity six months later among third grade girls. These same constructs were positively related to perceived popularity in seventh and ninth grade females. Overt and relational aggression evidenced no significant predictive relationship with perceived popularity in grade five for either gender. However, relational aggression did not predict perceived popularity status six months later for males at any grade level. In addition, by itself, overt aggression was not positively linked with perceived popularity at any age level but did uniquely negatively predict perceived popularity status six months later. For seventh and ninth grade pupils, relational aggression was uniquely and significantly correlated with perceived popularity despite the level of concurrent overt aggression that the perpetrator exhibited. On the other hand, while level of initial perceived popularity did not predict future engagement in overt aggression, it did significantly positively predict future levels of relational aggression for students in grades five, seven and nine.

Similarly, utilizing a sample of fourth through sixth grade Greek children, Andreou (2006) found that for females only sociometric popularity evidenced a negative relationship with both overt and relational aggression. Andreou also found evidence that utilization of aggression strategies precedes perceived popularity status in that

engagement in overt aggression may predict decreased perceived popularity while perpetration of relational aggression may result in increased popularity.

In a recent ethnographic study among girls in Vancouver and British Columbia, Canada, Currie, Kelly and Pomerantz (2007) found that members of the peer group did not often challenge the social standing of perceived popular girls principally because they did not wish to become ostracized, recognizing that popular girls wield considerable power and influence. As such, perceived popular girls generally maintained their elevated social standing.

Meanwhile, Butovskaya, Timentschik and Burkova (2007) found that perceived popularity and all three types of aggression studied (verbal, physical, and indirect) were unrelated in males, while female verbal aggression was positively linked with both peer and self-ratings of popularity in their investigation of 11 to 15 year old Russian adolescents.

Despite cross-cultural evidence to the contrary, it seems that at least in American society, that relational aggression is associated with perceived popularity during the middle school and high school years. In fact, perceived popularity status can often be predicted by an individuals level of engagement in relational aggression during the same developmental stage.

**Potential for Harm: Completion of a Peer Nomination Task**

Few researchers have actively investigated the potential for harm when utilizing peer nomination sociometric instruments. In fact, only four studies could be identified that investigated this phenomenon while a fifth study reported research findings regarding best practices identified by polling researchers.

Hayvren and Hymel (1984) studied the effects of sociometric nomination on preschool children by both interviewing and observing children after administration of the sociometric nomination instrument. It should be noted that children were not asked to keep responses confidential for methodological reasons. Students were observed continuously for the 10 minutes immediately following item administration during a free-play session in the classroom. While children initiated contact more frequently with those children identified as preferred, they did not differ in their display of negative reactions between most and least preferred peers. Furthermore, no child was observed to mention a negative or neutral selection to a peer nor discuss negative or neutral nominations of peers who were not immediately present. Researchers concluded that the administration of sociometric assessments had no adverse impact on the children's peer interactions with preferred and non-preferred peers.

Bell-Dolan, Foster, and Sikora (1989), on the other hand, investigated the possible harm children might experience as a result of participating in a same- and cross- sex sociometric peer nomination task in a sample of 25 fifth grade students. In their study, each child was spoken to individually by the examiner regarding the necessity that responses be kept confidential, prior to participation in the nomination task. Subjects were observed during unstructured periods (i.e. recess and lunch) immediately prior to and following completion of the sociometric peer nomination task. Participants were also observed during unstructured periods for several weeks before and after administration this task.  Unstructured periods were chosen as children engage in more frequent peer interaction during these times as opposed to structured classroom activities. The primary investigator met with small groups of children after administration of sociometric

assessments to debrief them and to obtain their ratings of how they felt about completing the sociometric assessment instrument and whether or not they had shared their responses with anyone. Bell-Dolan, Foster, and Sikora (1989), similar to Hayvren and Hymel (1984), found no adverse affects in response to participation in the sociometric peer nomination instrument. In fact, following both the positive and negative nomination tasks, neutral peer interactions increased while negative peer interactions decreased. Both before and after participation in the sociometric task, children not only interacted more frequently with preferred as opposed to nonpreferred peers, but engaged in many more positive and neutral interactions with this group of students as well. Importantly, children did not display differential rates of negative interactions with any of the peer preference groups and, levels of negative peer interaction with non-preferred peers did not significantly differ from those with preferred peers. Bell-Dolan, Foster, and Sikora also had the students complete a rating scale regarding their experience with the sociometric assessment after all data collection, including observations, had been completed. Findings indicated that children experienced no increase in either self-reported loneliness or negative mood as a result of participating in the sociometric nomination task.

Likewise, Bell-Dolan, Foster, and Christopher (1992) investigated the safety of sociometric peer nomination instruments with a sample of third through fifth grade boys and girls. The researcher assured each participant that she would keep their responses confidential and asked each participant to do the same. Two to four weeks after study completion, participants completed a questionnaire regarding their experience with the measure and if they had experienced any negative side effects. Parents and teachers completed measures regarding changes in their child's behavior after having participated

in the study. Neither parents nor teachers reported behavioral changes as a result of study participation, and generally speaking, participants reported feeling positive when filling out the measures. However, about a quarter of female participants indicated that they felt 'bad' about completing the negative nomination questions. Despite this finding, 96 percent of subjects indicated they enjoyed participating in the study and no differences emerged based on sociometric status group. Those who did not enjoy participating cited logistics as opposed to study content. Moreover, approximately 50 percent of females reported discussing their responses with others. However, results suggest that rejected peers heard much less about how their peers completed the questionnaires than did participants in other status groups. Researchers concluded that even those females who heard negative information about themselves were, for the most part, unaffected by this negative feedback as it was presumed to be no worse than what they encounter in everyday life.

Iverson, Barton, and Iverson (1997) also concluded that participation in positive and negative sociometric nominations did not cause children greater harm than they might encounter in daily life in their sample of third, fourth, and fifth grade students. As in previous research, children were told not to discuss their answers with other children. Assessment instruments were administered immediately prior to a structured classroom activity and children were instructed to omit any portion of the techniques they so chose. Children were also advised that they could withdraw from the study at any time. Two to three days after completion of study measures, one of the researchers met with each participating child individually and administered an interview designed to assess whether or not the child had talked about his/her responses to others, who they had talked to, the

valiance of the comments made, and if comments resulted in hurt feelings. Results indicate that, regardless of sociometric status, children were equally likely to discuss the sociometric experience with others and to discuss their feelings with regard to participating in the task. While both sociometrically popular and unpopular students were equally aware of comments being made about them by their peers, high status peers were more likely to receive compliments while low-status children were more likely to be ridiculed in a circuitous manner. It should be noted that no child was directly made fun of or found about the teasing that occurred behind their backs. While no child reported hurt feelings, several participants identified that hurt feelings could have ensued had children who were ridiculed been aware of the teasing. Children did report that negative discussions were generally between two parties and did not occur in the context of large groups. In general, children who talked about their participation felt positively about their discussions and most participants reported that would partake in a similar research project in the future.

While the limited research on the subject seems to indicate that participation in sociometric assessment causes no undue harm to subjects, over and above that which would be experienced in every day life, it is paramount that researchers take every precaution to protect participants from the possibility of harm. In this vein, Bell-Dolan and Wessler (1994) polled researchers regarding best practices with regard to sociometric assessments. The following were consistently identified as comprising best practices in this area: (a) active parental consent along with the written assent of children older the 7 years of age and the verbal assent of children younger than age 7, (b) ensuring that assessment sessions are scheduled prior to structured classroom activities or followed by

a distracter task in order to reduce breaches of confidentiality and reduce the impact of participation on interactions with peers, (c) using individual administration whenever possible or several research assistants to monitor item administration when group administration of the measures is necessary, (d) debriefing children following participation in the research project, (e) actively seeking feedback from parents, teachers and the children themselves following a research project as well as encouraging teachers and parents to contact researchers with concerns, and (f) providing intervention to at-risk children who may have been adversely impacted by the administration of the sociometric measures. Results were mixed in regard to asking study participants to keep their answers private as many researchers feel that this may have an effect opposite of that intend and lead to increased sharing of responses due to the temptation to share the supposed 'secrecy' of their answers. However, the majority of researchers seemed to agree that children should be asked not to share their responses with peers while simultaneously stressing the importance of being sensitive to the feelings of others. Researchers also agreed that children should be given unambiguous permission to either choose to share their responses with trusted adults or to decide not to share them with anyone.

**CHAPTER 3**

**Methods**

**Participants**

The participants were 99 males and females in grades three through twelve who attended a rural school district in mid-Michigan that serves lower to middle-class socioeconomic populations. All students (n=1500) in grades three through twelve were invited to participate. Parental permission to participate was obtained for a total of 49 males and 50 females. Table 2 contains the frequencies of males and females who participated at each grade level. The sample was 99 percent Caucasian.

Table 2

*Demographic Characteristics of Participants*

| | Grade | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $3^{rd}$ (n=10) | $4^{th}$ (n=5) | $5^{th}$ (n=14) | $6^{th}$ (n=21) | $7^{th}$ (n=10) | $8^{th}$ (n=13) | $9^{th}$ (n=6) | $10^{th}$ (n=9) | $11^{th}$ (n=4) | $12^{th}$ (n=7) |
| Males (n=49) | 6 | 1 | 8 | 9 | 5 | 8 | 4 | 4 | 2 | 2 |
| Females (n=50) | 4 | 4 | 6 | 12 | 5 | 5 | 2 | 5 | 2 | 5 |

According to the 2000 census, the majority of parents (77%) in this school district had earned a high school diploma or its equivalent while only 10.7% had at least a bachelor's degree. Single parent households comprised 10.3% of the population. The median household income for the district was $51,679 and at that time almost 30% of jobs in the county were in the manufacturing sector (Leadership Montcalm 7, 2007).

However, in 2006 the county's major employer moved its operations to Mexico (M.J. Woodcock, personal communication, March 23, 2010) and the economic collapse began. Montcalm County has consistently been at the top of the unemployment list for

the last 8 years. In July of 2007, 12.5% of adults were drawing unemployment benefits; however, this number does not take into account the hundreds of workers who lost their jobs, but were no longer eligible for benefits. According to school administration, 66 percent of students in this school district receive free and/or reduced lunch (S. Koster, personal communication, November 18, 2009).

This school district is comprised of two lower elementary schools (Pre-K through grade 2) that feed into one upper elementary school (grades 3 through 5), one middle school (grades 6 through 8) and one high school (grades 9 through 12). The lower elementary buildings, situated 6 miles apart, are each located in a small village/town and are attended by students from the surrounding rural area. In fact, the school community is comprised of very a homogeneous population and most individuals who are raised in these communities marry and raise their own children in the county where they themselves grew up. There are roughly 120 pupils in each grade level for a total student body of approximately 1,800.

Given the structure of this K-12 school system in this homogeneous, rural community, children attend school with their entire peer group from the third grade on and are known to at least half of their contemporaries for the duration of their passage through primary and secondary education. This is a unique circumstance and distinguishes this population from those previously studied because students are together for the vast majority of their educational career, and, therefore, do not need to renegotiate the peer group hierarchy and acquaint, or reacquaint, themselves with their classmates at the beginning of each and every academic year. Furthermore, there is very little

movement between communities within this geographic region, and consequently, very few new persons and/or families move into this community.

**Measures**

Peers were chosen as informants because prior research has generally relied on peer informants of relational aggression and popularity and data has shown that information provided by various respondents such as parents, teachers, peers, students themselves are not equivalent and unique information is gained from each respondent (Cullerton-Sen & Crick, 2005). Because the primary purpose of this study was to investigate the relationship between forms of aggression and popularity type, peer reports were believed to offer the most valid picture of the relationship between study variables because variables such as relational aggression and popularity status are not necessarily observable by adults. Furthermore, this method allowed multiple assessments of the behavior of each research participant because each participating child was evaluated by all participating grade-mates as opposed to one teacher or researcher (Crick & Grotpeter, 1995).

**Children's social behavior scale—peer report.** Originally developed by Crick and Grotpeter (1995) the Children's Social Behavior Scale—Peer Report (CSBS-P) is a 19-item peer nomination measure that assesses relational aggression and other facets of social behavior. The CSBS-P has been used extensively in prior research and has been shown to be internally consistent and to have a replicable factor structure across studies. Scores from the CSBS-P have been found to be reliable for the populations studied. While the CSBS-P has four subscales (relational aggression, overt aggression, prosocial behavior, and isolation) only the relational aggression and overt aggression subscales

were used for the purpose of this study. Prosocial behavior items were administered as distracter items in the current study in order to counter balance the other questions posed.

Twelve of the original 19 items comprising three of the original four scales of the CSBS-P were administered. The relational aggression scale is made up of five items, including: peers (a) who when they are mad at a person, get even by keeping that person from being in their group of friends, (b) who let their friends know that they will stop liking them unless the friends do what they want them to do, (c) who, when they are mad at a person, ignore the person or stop talking to them, (d) who try to exclude or keep certain people from being in their group when doing things together, and (e) who try to make another kid not like a certain person by spreading rumors about them or talking behind their backs. The overt aggression scale is made up of three items including: peers (a) who hit or push others at school, (b) who start physical fights with others and (c) who yell or call other classmates mean names. The prosocial scale is comprised of the following four items: peers (a) who other students look up to and try to be like, (b) who say or do nice things for other classmates, (c) who give help to those who need it, and (d) who try to cheer up other classmates who are upset or sad about something.

Participants were asked to write the code number of each student they wished to nominate for a particular item and used the same list of code numbers when answering all items. Whereas the original administration procedure of the CSBS-P asked children to list the numbers of up to three classmates for each item, the current research allowed children to nominate an unlimited number of same and cross-sex grade mates for each item. Due to the small number of students participating in each grade, self-nominations were also permitted (Prinstein & Cillessen, 2003).The number of nominations that children

received for each scale were summed and standardized by grade level (Crick & Grotpeter, 1995). Participant's relational and overt aggression scores were used as continuous variables in the analysis (Crick, 1997).

Crick and Grotpeter (1995) conducted a principal components analysis on the scores from their 491 participating boys and girls, grades three through six, obtained via this peer nomination instrument. They identified four factors: overt aggression, relational aggression, prosocial behavior, and isolation with eigenvalues greater than 1. Factor loadings ranged from .73 to .84 for the relational aggression scale and from .83 to .90 for the overt aggression scale. Chronbach alpha indicated that the scores from all scales were highly reliable ($\alpha = .94$, for overt aggression and $\alpha =. 93$, for relational aggression). Overt and relational aggression were correlated at $r = .54$ for the sample suggesting that distinctive forms aggression (Crick & Grotpeter, 1995).

In their study of 316 primarily Caucasian third through sixth grade students of lower-middle class socioeconomic status, Grotpeter and Crick (1996) identified a similar factor structure with item loadings ranging from .86 to .91 for the relational aggression scale and from .88 to .92 for the overt aggression scale among their sample of 315 9-12 year old students. Relational and overt aggression were correlated at $r = .63$ for this sample.

Additionally, Crick (1996) reported supportive psychometric evidence in her study of 245 third through sixth grade children. Chronbach alpha for relational aggression, and overt aggression scales were .83, and .94 for this sample. Relational and overt aggression were correlated at $r = .77$ for this sample. Teacher and peer assessments of overt aggression were correlated at $r = .69$ for boys and $r = .74$ while teacher and peer

assessments of relational aggression were r = .57 for boys and r = .63 for females indicating that each informant was providing some unique information not reported by the other. One month reliability of scores from the overt aggression scale were r = .93 for males and r = .81 for females while the one month reliability for relational aggression was r = .86 for males and r = .80 for females. Long-term stabilities over a 6-month period for males were r = .78 (overt aggression) and r = .56 (relational aggression) while long-term stabilities for females were r = .68 for both scales.

Furthermore, Crick, Casas and Mosher (1997) verified the previously identified factor structure of the CSBS-P in their sample of preschool children ages three to six. Internal consistency reliability for this sample was α = .71, and .77, for the relational aggression, and overt aggression scales respectively. Factor loadings ranged from .64 to .76 for relational aggression and .61 to .80 for overt aggression. Relational and overt aggression were correlated at r = .46 for males and r = .37 for females.

Crick (1997) also reproduced this factor structure of the CSBS-P with her sample of 1166 children ages 9-12. Chronbach alphas for this sample were .96 for overt aggression and .88 for relational aggression. Item loadings ranged from .79 to .90 for overt aggression and .86 to .90 for relational aggression. The overt and relational aggression scales were correlated at r = .63.

In summary, previous research has conclusively demonstrated that the scores from the CSBS-P are, in fact, reliable for the assessment of overt and relational aggression for children during the period of elementary school. However, confirmatory factor analysis using this instrument will be performed on the current sample in order to

corroborate prior research findings and extend those findings to the secondary school population.

**Assessment of perceived popularity.** Analogous to the procedure reported by Cillessen and Mayeux (2004), perceived popularity was assessed by asking students to nominate an unlimited number of grade-mates for the following items: Who is the most popular kid in your grade? Who is the least popular kid in your grade? (Due to the small number of students participating per grade level, self-nominations were also again permitted.) Nominations were summed and standardized for each participant across grade level. Participants wrote the code number of the student they wished to nominate for a particular item. Participants used the same list to answer all items.

This metric of peer status was used as a means of sectioning participants into perceived popular, average, and perceived unpopular groups by using a cut-off of one standard deviation above differentiate between groups (Kosir & Pecjak, 2005). Those with scores one standard deviation above the mean or higher were considered to be perceived popular, those with scores one standard deviation below the mean were considered to be perceived unpopular, and the remaining individuals comprised the group of students who were perceived as average (Kosir & Pecjak, 2005).

Scores from this measure has moderate test-retest reliability ($r = .68$) over a four-year period from fifth through ninth grades as reported by Sandstrom and Cillessen (2006). Asking children to name 'popular' and 'unpopular' peers appears to have face validity in that it intuitively makes sense that the answers to these questions would reflect the level of perceived popularity assigned to a given individual by the peer group. There is evidence for discriminant and predictive validity as well. For example, Wang,

Houshyar, and Prinstein (2006), in their investigation of 441 adolescent males and females attending a public high school in New England, found that perceived popular males and females were more likely to engage in dieting behavior than their non perceived popular classmates. With respect to self-reported body size, perceived popularity was associated with a muscular silhouette for males, while non-perceived popular males reported having either thin or heavy body types. A linear association was found for females: the more perceived popular a female, the smaller her body shape. No association was found between body type and sociometric popularity for either males or females. Furthermore, sociometric popularity was unrelated to dieting behavior for both genders.

In addition to being linked with dieting behavior and perceived body type, perceived popularity is associated with being socially skilled and having what others want: attractiveness, high socioeconomic status, athletic ability designer clothes, the latest electronics, and intimate relationships with high status members of the opposite sex (Alder, Kless, & Alder, 1992; LaFontana & Cillessen, 2002). Perceived popularity in 10th grade predicts increased sexual behavior and drug use in grade 12 (Sandstrom & Cillessen, 2006). It is also positively linked with both overt and relational aggression in adolescents (LaFontana and Cillessen, 2002; Rodkin, Farmer, Pearl & Van Acker, 2000; Sandstrom & Cillessen, 2006). Perceived popularity is positively linked not only to initial levels of relational aggression in secondary school students, but also to increases in both overt and relational aggression over time (Mayeux & Cillessen, 2008; Sandstrom & Cillessen, 2006).

Perceived popularity also makes a unique contribution to the prediction of individual characteristics, over and above that of sociometric popularity. Specifically, Kosir and Pecjak (2005) found, via their investigation of Slovenian males and females between the ages of 11 and 17 years of age, that students high on both sociometric and perceived popularity were viewed by same age peers as the most well adjusted, followed by perceived popular students who are not sociometrically popular, sociometrically popular only students and average students, in that order. Assessed dimensions of adjustment included: getting along with teachers, academic success, creativity, leadership, self-concept, persistence, and low anxiety.

**Assessment of sociometric popularity.** Consistent with the procedure utilized by Cillessen and Mayeux (2004), sociometric popularity was assessed by asking students to nominate an unlimited number of grade-mates for the following items: Which peers do you most enjoy spending time with? Which peers do you least enjoy spending time with. Nominations were summed and standardized for each participant across grade level.

This metric of peer status was utilized as a means of grouping participants into sociometrically popular and not sociometrically popular groups by using a cut-off of one standard deviation to differentiate between groups (Lease, Kennedy, & Axelrod, 2002). Those with scores one standard above the mean or higher were be considered to be sociometrically popular, those with scores one standard deviation or more below the mean were considered to be sociometrically unpopular, and the remaining individuals made up sociometrically average group (Lease, Kennedy, & Axelrod, 2002).

The construct of sociometric popularity also appears to be moderately stable ($r = .58$) over time (Sandstrom & Cillessen, 2006). Research has shown that when liking and

disliking are sectioned in this way, measures of sociometric popular can reliably discriminate between groups on a variety of characteristics. However, in the research literature, group sectioning is often more specific than is needed for the purposes of this study and sociometric statuses are derived by sectioning the continuous variables of liking and disliking into the distinct status groups of popular, rejected, neglected, and controversial. Children classified as popular are liked by many and disliked by few same-age peers while rejected individuals are those who are liked by few and disliked by many. Neglected individuals, on the other hand, are generally ignored by the peer group are neither mentioned as well liked or considerably disliked on sociometric instruments. Controversial status individuals are both simultaneously liked and disliked within the peer group at large (Coie, Dodge, & Coppotelli, 1982). A large body of evidence exists demonstrating appreciable differences in these sociometric status groups.

In fact, in some respects, sociometrically popular and controversial children exhibit more advantageous characteristics than members of all other status groups. They are strong leaders (DeRosier & Thomas, 2003), exhibit high levels of prosocial behavior (Tomada & Schneider, 1997), are more social than average children (Nelson, Robinson & Hart, 2005), exhibit high levels academic competence (Cillessen & Mayeux, 2007), have increased levels of self-perceived competence in general (Hymel, Rubin, & LeMare, 1990) and, for females only, exhibit fewer internalizing symptoms than same-aged peers (Sandstrom & Cillessen, 2006).

On the other hand, rejected children, not surprisingly, are perceived to be both perpetrators and recipients of both overt and relational aggression (Putallaz et al., 2007). During the elementary school years, individuals classified as rejected exhibit higher

levels of both overt and relational aggression than persons in average, neglected or popular categories (Crick & Grotpeter, 1995; DeRosier & Thomas, 2003; Henington, Hughes, Cavell & Thompson, 1998 Putallaz et al., 2007; Tomada & Schneider, 1997). However, the relationship between peer rejection and relational aggression seems to be moderated by gender. Rejected males are much more likely to be viewed as overtly aggressive than are rejected females (Putallaz et al., 2007) while rejected females are much more likely to be relationally aggressive than are rejected males (Rys & Bear, 1997). On the other hand, rejected girls are significantly more likely to be viewed by their peers to be the recipients of overt victimization than are boys (Putallaz et al., 2007).

While controversial status children exhibit levels of overt and relational aggression comparable to rejected children (Crick & Grotpeter, 1994; DeRosier & Thomas, 2003; Putallaz et al., 2007; Tomada & Schneider, 1997), they are, in general, viewed by peers as perpetrators, but not victims, of both overt and relational aggression (Putallaz et al., 2007).

Sociometrically popular children engage in the lowest levels of relational and overt aggression compared to other status groups, followed by average children (Putallaz et al., 2007) and neglected children (Crick & Grotpeter, 1994) although not necessarily in that order. While peers have indicated that popular children exhibit fewer physically aggressive behaviors than do average children (Nelson, Robinson, & Hart, 2005), Yoon, Hughes, Cavell and Thompson (2000) found that among elementary aged students, there are some aggressive children who are not rejected by the peer group but viewed as average or even sociometrically popular by their peers. Robertson, Farmer, Fraser, Day,

Duncan, Crowther, and Dadisman (2010) identified two types of aggressive individuals: those who were concurrently sociometrically popular and those who were not.

**Demographic information.** The demographic information sheet contained forced choice questions. Items include gender (male or female), grade-level, (3 -12) and ethnicity (Caucasian, African American, Asian America, Hispanic, Native American, Arabic American, Biracial or Other). Participants were asked to complete this questionnaire by circling the single most appropriate answer for each item.

**Technology use and school behavior questionnaire.** As a distractor task, participants were asked to answer a series of questions regarding their technology use (i.e., Do you have a computer? Do you text message? etc) answered on a 2-point scale (1 = yes, 2 = no) as well as several questions regarding their general school behavior (I am tardy for school,  I fight in school, etc.) answered on a Likert type scale. The questionnaire was originally reported in Taiariol (2010).

**Reaction measure.** As previously discussed, best practices necessitate active study of potential harm posed by research so that if harm is incurred it can be mended and avoided in the future investigations (Bell-Dolan, Foster, & Christopher, 1992; Bell-Dolan, Foster, & Sikora, 1989, Bell-Dolan & Wessler, 1994; Hayvren & Hymel, 1984, Iverson, Barton, & Iverson, 1997). Therefore, a set of questionnaires assessing how participants felt during and after answering study questions was administered four weeks after the initial phase of data collection.

The Sociometric-Risk Questionnaire: Self Report (SRQ-S) was developed for purposes of this study and was modeled after that reported by Iverson, Barton, and Iverson (1997). The SRQ-S is a 9-item measure that incorporates a mixture of open-

ended (i.e. What was said about the worksheets?), yes/no (i.e. Did any of your classmates talk to you about how they felt?), and five point Likert-type (i.e. After talking to others how did you feel?) response formats.

The SRQ-S assesses participants enjoyment in participating in the research project (i.e., How much did you enjoy participating in the project? Would you like to participate in a similar project in the future?), whether peers talked to each other about assessment items (i.e., How many of your classmates did you talk to about the worksheets? What was said about the worksheets? Did any of your classmates talk to you about how they felt? ), and the impact of such disclosure when it did occur (i.e., After talking to others how did you feel? Who was complimented? Who was teased, you know, made fun of? Who got their feelings hurt?). For each of these items were peers/situations are identified, children were instructed to answer the follow-up question, how did it turn out in the end?

**Procedure**

Participants were recruited from both general and special education classes. A letter introducing the primary investigator in addition to a consent form was sent via first class mail to the parents of all children enrolled in grades three through twelve, detailing the research to be conducted in their child's school. Parents signed and returned the permission slip, via first class mail in the self-addressed stamped envelope provided, to the primary investigator, to give or deny their permission for the child to participate in the research study. Children for whom permission slips were not received were not permitted to participate in the research study.

Children who had parental permission to participate in the study were included in the peer nomination instruments and could be nominated by their peers. Children without

consent to participate were not included on the grade level rosters and children were unable to nominate non-participating students in response to any of the study items. A list of participating students for each grade was compiled and a code number assigned to each student. Student's names were alphabetized by first name in order to allow ease of identification of a nominee's code number. Student names were printed on the left hand side of the page, while code numbers were printed on the right hand side of the page. Rosters contained 5 to 22 names and the variability in roster size was due to different participation rates across grade levels. Participants used the same roster to answer all peer nomination items.

Study questions were printed at the top of each page of the assessment and, with the exception of the demographic information sheet, only one question was printed on each page. Lines were provided underneath the questions to enable participants to easily write the code numbers of those whom they wished to nominate.

Participants completed the previously described peer nomination instruments and demographic information sheet, during one 30-minute administration session conducted outside of the child's classrooms. Children were instructed that their participation in the study was voluntary and that they could discontinue participation at any time. Children were directed that they could choose to skip any item that they did not feel comfortable answering, without penalty. Grade-level cohorts completed the assessments as a group in an empty classroom in their school. Middle school students completed the assessments in a classroom in the adjoining high school building. Measures were administered in the following order during the first assessment session: demographic information sheet,

sociometric popularity assessment, perceived popularity assessment, CSBS-P, and technology use and school behavior questionnaire.

The primary investigator, who employed standardized procedures, conducted these data collection sessions with the assistance of a community volunteer. Children who did not wish to participate or who did not have parental consent completed an alternate assignment under the direction of their classroom teacher while data was being collected.

Consistent with best practices for sociometric assessment, each data collection session was scheduled immediately prior to a structured classroom activity because unstructured activities immediately following item administration are the times when confidentiality breaches are most likely to occur (Bell-Dolan & Wessler, 1994). Participants were instructed that the researchers would keep their responses confidential; the primary investigator requested that participants not discuss their responses with each other and only share them with a trusted adult at the child's discretion. Children were also encouraged to be sensitive to the feelings of others in the context of a discussion regarding the "six pillars of character", within the context of the *Character Counts* program, which is implemented within this school district. The examiner read a standardized script to the students and answered any questions asked by the students.

During each session, children were trained in the use of the peer nomination instrument and the use of code numbers. Each item was read aloud by the primary investigator and she was available to answer the children's questions. Children were instructed to nominate as many students as fit the description for each item by writing the code numbers of the students they wish to nominate. While students were not instructed

to engage in self-nomination, this practice was not monitored and all nominations were used in the data analysis. In the event a participant wrote a participating student's name, as opposed to their code number, the primary investigator printed the named student's code number on the answer sheet and blacked out the written name. Additionally, when students nominated nonparticipating grade mates by writing their names on assessment sheets, the examiner blacked out this information and it was not used in the analysis.

Upon completion of the first phase of the study, children were provided with a small token of appreciation (i.e. a snack sized candy bar) for their time. Furthermore, all students with parental consent were entered into a drawing for a gift card from a local merchant as an additional thank-you for their time. Gift cards were distributed after the initial phase of data collection by school staff.

If students with parental consent were absent on the date of group-level data collection, the primary investigator attempted to schedule a make-up session with each student the following day, again scheduling the session before a structured class activity in order to minimize priming effects.

The Sociometric-Risk Questionnaire: Self-Report was administered four weeks after the initial phase of data collection. The primary investigator administered the SRQ-S to all research participants who participated in the initial phase of data collection. The questionnaire was completed by grade-level cohorts in an empty classroom within their school building. Middle school students completed the assessment in a classroom in the adjoining high school building. Students who did not participate in the study completed an alternate class assignment under the direction of their classroom teacher. Student code numbers were printed at the top of each questionnaire in order to enable the researcher to

identify any students that self-disclosed adverse reaction to the study in order to provide follow-up counseling and/or other necessary treatments.

Before completion of the Sociometric-Risk Questionnaire: Self Report students were informed that their responses may be shared with their parents in order to provide follow-up care if psychological harm was incurred as a result of participating in the study. The primary investigator explained the use of the Likert-type scale and refreshed students on use of the code numbers that were utilized in the initial phase of data collection. Furthermore, students were directed to skip any item that they did not feel comfortable answering. Each statement was read aloud by the primary investigator. The primary investigator and a community volunteer circulated around the classroom and were available to answer questions. After this second phase of data collection, participants were again be given a small token of appreciation for their time (i.e. a snack-sized candy bar) and thanked for their participation.

**Data Analysis**

The study utilized a 2 x 2 design, analyzing the effects of gender (2 levels) and school level (2 levels) on aggression type (relational aggression and overt aggression), sociometric popularity and perceived popularity. Fixed, main, special and interaction effects were investigated. The relationship between aggression type (overt vs. relational) was also explored within and between subject groups. See Table 3 for specific research questions and planned analyses.

An alpha level of .05 was used as the significance criterion. A medium to large effect size was expected given the pattern of relationships between study variables: relational aggression and perceived popularity $r = .31$ (LaFontana & Cillessen, 1999),

relational aggression and overt aggression $r = .77$ (Crick, 1996), sociometric popularity and perceived popularity $r = .73$ (LaFontana & Cillessen, 1999). Power analysis indicated that a minimum sample size of 84 (21 subjects per cell) should be obtained to achieve a desired power level of .95. Target n for this study was 24 subjects per cell for a total sample size of 96 participants.

Table 3

*Research Questions, Hypotheses and Planned Analyses*

| Hypotheses | Variables | Statistical Analysis |
|---|---|---|
| 1. Are there significant differences within gender for engagement in aggressive behavior? | | |
| $H_{1a}$: Females are more relationally aggressive than overtly aggressive. | <u>Independent Variables</u> Gender (Male and Female) | Repeated Measures ANOVA |
| $H_{1b}$: Males are more overtly than relationally aggressive. | <u>Dependent Variables</u> Aggression Type <ul><li>Relational Aggression</li><li>Overt Aggression</li></ul> | If significant, planned contrasts. |
| 2. Are there between-gender differences in aggressive behavior? | | |
| $H_{2a}$: Males are more overtly aggressive than are females. | <u>Independent Variables</u> Gender (Male and Female) | ANOVA If significant, planned contrasts. |
| $H_{2b}$: Females are more relationally aggressive than are males. | <u>Dependent Variables</u> Aggression Type <ul><li>Relational Aggression</li><li>Overt Aggression</li></ul> | |
| 3. Does the pattern of gender differences in aggressive strategies differ between primary and secondary levels? | | |
| $H_{3a}$: Both males and females exhibit increasing amounts of relational aggression over time. | <u>Independent Variables</u> Gender (Male and Female) School Level <ul><li>Primary (Grades 3-6)</li><li>Secondary (Grades 7-12)</li></ul> | ANOVA If significant, planned contrasts. |

| H$_{3b}$: For relational aggression, the difference between males and females decreases over time. | Dependent Variables<br>Aggression Type<br>Aggression<br>Overt Aggression | |
| H$_{3c}$: Both males and females exhibit decreasing amounts overt aggression over time over time. | | |

| 4.  Are there significant differences in relational aggression levels by popularity type? | | |
| --- | --- | --- |
| H$_{4a}$: Perceived popular individuals are more relationally aggressive than sociometrically popular individuals. | <u>Independent Variables</u><br>Popularity Type<br>    • Sociometric<br>    • Perceived<br><br><u>Dependent Variables</u><br>Relational Aggression | ANOVA<br><br>If significant, planned contrasts. |

| 5.  Does the difference in relational aggression levels by popularity type differ between primary and secondary school levels? | | |
| --- | --- | --- |
| H$_{5a}$: Sociometrically popular and perceived popular groups exhibit similar and low levels of relational aggression during the primary school years.<br><br>H$_{5b}$: At the secondary school level, perceived popular students exhibit higher levels of relational aggression than do sociometrically popular students.<br><br>H$_{5c}$: At the secondary level, sociometrically popular individuals continue to | <u>Independent Variables</u><br>Popularity Type<br>    • Sociometric<br>    • Perceived<br>School Level<br>    •       Primary (Grades 3-6)<br>    •       Secondary (Grades 7-12)<br><br><u>Dependent Variables</u><br>Relational Aggression | ANOVA<br><br>If significant, planned contrasts. |

exhibit low levels of
relational aggression.

**CHAPTER 4**

**Results**

This chapter presents the results of the data analyses that were used to address each of the research questions for this study. The primary purpose of this study was to examine the relation between popularity type (sociometric popularity and perceived popularity) and relational aggression. Study variables were standardized as z-scores. Inferential statistical analyses were used to test each of the research questions, with statistical significance determined using a criterion alpha level of .05. Higher scores were indicative of higher levels of aggressive behavior or popularity. See Table 4 for the descriptive statistics for overall levels of popularity (sociometric and perceived) and aggression (overt and relational). See Tables 5, 6, 7, and 8 for descriptive statistics, by grade and school level, for sociometric popularity, perceived popularity, overt aggression, and relational aggression. Table 9 presents the intercorrelations between study variables.

Table 4

*Descriptive Statistics for Overall Measures of Popularity and Aggression*

| Measure | N | M | SD | Range | |
| --- | --- | --- | --- | --- | --- |
| | | | | Minimum | Maximum |
| Sociometric Popularity | 99 | 0 | 0.95 | -2.04 | 2.08 |
| Perceived Popularity | 99 | 0 | 0.95 | -2.56 | 2.45 |
| Overt Aggression | 99 | 0 | 1.00 | -0.56 | 5.52 |
| Relational Aggression | 93 | 0 | 0.96 | -1.46 | 2.47 |

Table 5

*Descriptive Statistics for Sociometric Popularity* (n=99)

|  | n | Mean | SD | Range | |
|---|---|---|---|---|---|
|  |  |  |  | Minimum | Maximum |
| Primary School | 50 | 0 | 0.97 | -2.04 | 2.08 |
| 3$^{rd}$ Grade | 10 | 0 | 1 | -1.70 | 2.08 |
| 4$^{th}$ Grade | 5 | 0 | 1 | -1.72 | 0.69 |
| 5$^{th}$ Grade | 14 | 0 | 1 | -1.52 | 1.86 |
| 6$^{th}$ Grade | 21 | 0 | 1 | -2.04 | 1.75 |
| Secondary School | 49 | 0 | 0.95 | -1.82 | 1.97 |
| 7$^{th}$ Grade | 10 | 0 | 1 | -1.31 | 1.97 |
| 8$^{th}$ Grade | 13 | 0 | 1 | -1.82 | 1.34 |
| 9$^{th}$ Grade | 6 | 0 | 1 | -1.55 | 1.11 |
| 10$^{th}$ Grade | 9 | 0 | 1 | -1.42 | 1.14 |
| 11$^{th}$ Grade | 4 | 0 | 1 | -1.23 | 1.23 |
| 12$^{th}$ Grade | 7 | 0 | 1 | -1.35 | 1.28 |
| Total | 99 | 0 | 0.95 | -2.04 | 2.08 |

Table 6

*Descriptive Statistics for Perceived Popularity* (n=99)

|  | n | M | SD | Range | |
|---|---|---|---|---|---|
|  |  |  |  | Minimum | Maximum |
| Primary School | 50 | 0 | 0.97 | -2.56 | 2.45 |
| 3$^{rd}$ Grade | 10 | 0 | 1 | -2.17 | 1.61 |
| 4$^{th}$ Grade | 5 | 0 | 1 | -1.73 | 0.79 |
| 5$^{th}$ Grade | 14 | 0 | 1 | -2.56 | 1.02 |
| 6$^{th}$ Grade | 21 | 0 | 1 | -1.90 | 2.45 |
| Secondary School | 49 | 0 | 0.95 | -1.94 | 1.62 |
| 7$^{th}$ Grade | 10 | 0 | 1 | -1.41 | 1.62 |
| 8$^{th}$ Grade | 13 | 0 | 1 | -1.94 | 1.50 |
| 9$^{th}$ Grade | 6 | 0 | 1 | -1.12 | 1.11 |
| 10$^{th}$ Grade | 9 | 0 | 1 | -1.53 | 1.40 |
| 11$^{th}$ Grade | 4 | 0 | 1 | -1.41 | 0.71 |
| 12$^{th}$ Grade | 7 | 0 | 1 | -1.79 | 1.34 |
| Total | 99 | 0 | 0.95 | -2.56 | 2.45 |

83

Table 7

*Descriptive Statistics for Overt Aggression* (n=99)

|  | n | M | SD | Range | |
|---|---|---|---|---|---|
|  |  |  |  | Minimum | Maximum |
| Primary School | 50 | 0.26 | 1.25 | -0.56 | 5.52 |
| 3rd Grade | 10 | 0.57 | 1.00 | -0.28 | 2.76 |
| 4th Grade | 5 | -0.45 | 0.25 | -0.56 | -0.01 |
| 5th Grade | 14 | 0.09 | 1.11 | -0.56 | 2.76 |
| 6th Grade | 21 | 0.40 | 1.52 | -0.56 | 5.52 |
| Secondary School | 49 | -0.27 | 0.56 | -0.56 | 2.20 |
| 7th Grade | 10 | -0.04 | 0.89 | -0.56 | 2.20 |
| 8th Grade | 13 | -0.07 | 0.62 | -0.56 | 1.10 |
| 9th Grade | 6 | -0.56 | 0.00 | -0.56 | -0.56 |
| 10th Grade | 9 | -0.28 | 0.31 | -0.56 | 0.27 |
| 11th Grade | 4 | -0.56 | 0.00 | -0.56 | -0.56 |
| 12th Grade | 7 | -0.52 | 0.10 | -0.56 | -0.28 |
| Total | 99 | 0 | 1.00 | -0.56 | 5.52 |

Table 8

*Descriptive Statistics for Relational Aggression* (n=93)

|  | n | M | SD | Range | |
|---|---|---|---|---|---|
|  |  |  |  | Minimum | Maximum |
| Primary School | 50 | 0 | 0.97 | -1.46 | 2.47 |
| 3rd Grade | 10 | 0 | 1 | -1.46 | 1.76 |
| 4th Grade | 5 | 0 | 1 | -1.10 | 1.64 |
| 5th Grade | 14 | 0 | 1 | -0.85 | 2.47 |
| 6th Grade | 21 | 0 | 1 | -1.10 | 2.09 |
| Secondary School | 43 | 0 | 0.95 | -1.09 | 2.37 |
| 7th Grade | 10 | 0 | 1 | -1.08 | 1.52 |
| 8th Grade | 13 | 0 | 1 | -0.92 | 2.37 |
| 10th Grade | 9 | 0 | 1 | -0.91 | 1.61 |
| 11th Grade | 4 | 0 | 1 | -0.79 | 1.47 |
| 12th Grade | 7 | 0 | 1 | -1.09 | 1.45 |
| Total | 93 | 0 | 0.96 | -1.46 | 2.47 |

Table 9

*Intercorrelations for Aggression Type and Popularity Type*

| Measure | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Sociometric Popularity | -- | | | |
| 2. Perceived Popularity | .33* | -- | | |
| 3. Overt Aggression | -.31* | .03 | -- | |
| 4. Relational Aggression | -.36* | -.07 | .49* | -- |

\* p<.01

Sociometric and perceived popularity were significantly moderately correlated at r = .33, p < 0.01, indicating a positive relation between the two variables. Overt aggression and sociometric popularity were moderately correlated at r = -.31, p < 0.01 indicating that the two variables exhibit a negative relation. Relational aggression was moderately negatively correlated with sociometric popularity as well (r = -.36, p < 0.01). Relational and overt aggression were strongly correlated at the r = .49, p < 0.01, level. Perceived popularity was not significantly correlated with either measure of aggressive behavior.

**Factor Analysis on CSBS-P**

In order to corroborate prior research with the CSBS-P and extend findings to the secondary school population (grades 7-12), a principal components factor analysis with VARIMAX was performed. This analysis yielded the three predicted factors (overt aggression, relational aggression, and prosocial behavior). These factors accounted for 80.27% of the variation in scores. Specifically, the relational aggression factor accounted for 45.62% (eigenvalue =5.02), the prosocial behavior factor accounted for 25.03% (eigenvalue = 2.75) and overt aggression accounted for 9.63% (eigenvalue = 1.06). See Table 10.

The results of the factor analysis indicated that one item traditionally included on the overt aggression scale of the CSBS-P ("Which grade-mates yell or call other classmates mean names?") had high loadings on both the overt aggression (.68) and relational aggression (.63) factors. Therefore, the item was dropped from the overt aggression scale. Neither was it included on the relational aggression scale.

Table 10

*Eigenvalues, Percentages of Variance, and Cumulative Percentages for Factors of the 12-Item CSBS-P*

| Factor | Eigenvalue | % of variance | Cumulative % |
|---|---|---|---|
| 1 | 5.02 | 45.62 | 45.62 |
| 2 | 2.75 | 25.03 | 70.65 |
| 3 | 1.06 | 9.63 | 80.27 |

Factor loadings for the items of the resulting three scales were relatively high, ranging from .81 to .86 for the relational aggression scale, from .76 to .90 for the prosocial behavior scale and from .88 to .91 for the overt aggression scale. See Table 11 for factor loadings.

Table 11

*Factor Loadings From Principal Component Factor Analysis with Varimax Rotation: Communalities, Eigenvalues, and Percentages of Variance for Items of the CSBS-P*

| Item | Factor loading | | | Communality |
| | 1. Relational Aggression | 2. Prosocial Behavior | 3. Overt Aggression | |
|---|---|---|---|---|
| 4. Which people, who when they are mad at a person, get even by keeping that person from being in their group of friends? | **.83** | .05 | .22 | .75 |
| 6. Which people let their friends know that they will stop liking them unless the friends do what they want them to do? | **.86** | -.15 | .19 | .79 |

| | | | |
|---|---|---|---|
| 7. Which people, when they are mad at a person, ignore the person or stop talking to them? | **.86** | .02 | -.01 | .75 |
| 10. Which students try to exclude or keep certain people from being in their group when doing things together? | **.84** | -.05 | .35 | .84 |
| 12. Which students yell or try to make another kid not like a certain person by spreading rumors about them or talking behind their backs? | **.81** | -.13 | .34 | .79 |
| 1. Which kids do other students look up to and try to be like? | .08 | **.76** | .08 | .59 |
| 3. Which students say or do nice things for other grade-mates? | -.13 | **.90** | -.19 | .86 |
| 5. Which people give help to those who need it? | -.17 | **.88** | -.17 | .83 |
| 8. Which students try to cheer up other classmates who are sad or upset about something? They try to make them feel happy again. | -.01 | **.88** | -.17 | .80 |
| 2. Which students hit or push others at school? | .28 | -.16 | **.90** | .92 |
| 9. Which students start physical fights with others? | .33 | -.16 | **.89** | .90 |
| Eigenvalue | 4.10 | 3.03 | 2.53 | |
| % of variance | 34.18 | 25.28 | 21.10 | |

Overt and relational aggression were correlated at $r = .49$ for this sample, while relational aggression and prosocial behavior were correlated at $r = -.41$. Meanwhile, overt aggression and prosocial behavior were correlated at $r = -.41$ for the current sample. All

correlations were significant at the p < .01 level. See Table 12 for a summary of correlations between the scales.

Table 12

*Intercorrelations for Scales of the CSBS-P*

|  | 1 | 2 | 3 |
|---|---|---|---|
| 1. Relational Aggression | -- | | |
| 2. Overt Aggression | .49* | -- | |
| 3. Prosocial Behavior | -.39* | -.41* | -- |

*p < .01

## *Measures of Popularity*

For the current sample, 16 percent of participants were classified as perceived popular while 69 percent were classified as perceived average. Fifteen percent of the sample was classified as perceived unpopular. Table 13 summarizes the percentages of participants classified in each of the three perceived popularity status groups and compares those percentages with prior research. Data indicates that the percentages of participants classified into each of the three categories are similar between the current study and those of LaFontana and Cillessen (1999) and Parkhurst and Hopmeyer (1998), providing evidence for the validity of the perceived popularity measure.

Table 13

*Perceived Popularity Status Comparisons*

|  | Popular | Average | Unpopular |
|---|---|---|---|
| Current Sample N=99) Grades 3-12 | 16% | 69% | 15% |
| LaFontana & Cillessen (1999) (n=191) Grades 4-5 | 17% | 64% | 67% |
| Parkhurst & Hopmeyer (1998) (n=727) Grades 7-8 | 16% | 67% | 17% |

For the current sample, 16 percent of participants were classified as sociometrically popular while 67 percent were classified as sociometrically average. Seventeen percent of participants were classified as sociometrically unpopular.

Additionally, sociometric and perceived popularity are correlated at $r = .33$, $p = .001$ for the current sample, indicating that they measure different, but related, facets of peer relationship status.

**Research Questions**

Five research questions were developed for this study. These questions were answered using inferential statistics, with a criterion alpha of .05 used to determine statistical significance.

**Research question 1**: Are there significant differences within gender for engagement in aggressive behavior?

$\textbf{H}_{\textbf{1a}}$**:** Females are more relationally aggressive than overtly aggressive.

$\textbf{H}_{\textbf{1b}}$**:** Males are more overtly than relationally aggressive.

A repeated subjects analysis of variance was run to examine within gender differences in aggressive type. Mauchly's test was conducted and was not significant ($X^2 = .000$), suggesting that the observed matrix does exhibit appropriately equal variances and covariances. Table 14 provides the means and standard deviations for males and females.

Table 14

*Means and Standard Deviations For Relational Aggression and Overt Aggression by Gender*

| Variable | Males (n=45) | | Females (n=48) | | Total (n=93) | |
|---|---|---|---|---|---|---|
| | M | SD | M | SD | M | SD |
| Relational Aggression | 0.11 | 0.96 | -0.10 | 0.95 | 0 | 0.96 |
| Overt Aggression | 0.46 | 1.29 | -0.37 | 0.37 | 0.04 | 1.02 |

Table 15 summarizes the results of the repeated subjects analysis of variance. A significant between subjects main effect was found for gender, $F(1, 91) = 9.39$, $p = .003$, $\eta^2 = .09$). An interaction effect was found for aggression type and gender, $F(1, 91) = 9.90$, $p = .002$, $\eta^2 = .10$.

Table 15

*Summary Table for Gender by Aggression Type Repeated Subjects ANOVA*

| Source | df | SS | MS | F | p | $\eta^2$ |
|---|---|---|---|---|---|---|
| | | | Between Subjects | | | |
| Gender | 1 | 12.56 | 12.56 | 9.398* | .003 | .09 |
| Error | 91 | 121.75 | 1.34 | | | |
| | | | Within Subjects | | | |
| Aggression Type | 1 | 0.10 | 0.10 | 0.220 | .641 | .00 |
| Aggression Type x Gender | 1 | 4.48 | 4.48 | 9.90 * | .002 | .10 |
| Error | 91 | 41.20 | 0.45 | | | |

A series of planned contrasts were investigated to compare aggression levels within gender. Two contrasts produced significant results. A comparison of relational and overt aggression for males was significant, $F(1, 44) = 5.85$, $p = .020$, $\eta^2 = .12$, suggesting that the males in this sample exhibit higher levels of overt (M = 0.46, SD = 1.29) than relational aggression (M = 0.11, SD = 0.96). In addition, a comparison of aggression type for females was significant, $F(1, 47) = 4.01$, $p = .051$, $\eta^2 = .08$, suggesting that the

females in this sample exhibit higher levels of relational (M= -0.10, SD = 0.95) than overt aggression (M = -0.37, SD = 0.37).

**Research question 2:** Are there between-gender differences in aggressive behavior?

$H_{2a}$**:** Males are more overtly aggressive than are females.

$H_{2b}$**:** Females are more relationally aggressive than are males.

Two analyses of variance were run to examine between gender differences in aggression type; one for relational aggression and one for overt aggression. Table 16 provides the means and standard deviations for relational aggression by gender, while Table 17 provides the means and standard deviations for overt aggression by gender.

Table 16

*Means and Standard Deviations For Relational Aggression by Gender*

|                    | M     | SD   |
|--------------------|-------|------|
| Males (n = 45)     | 0.11  | 0.96 |
| Females (n = 48)   | -0.10 | 095  |
| Total (n = 93)     | 0.00  | 0.96 |

Table 17

*Means and Standard Deviations for Overt Aggression by Gender*

|                    | M     | SD   |
|--------------------|-------|------|
| Males (n = 49)     | 0.38  | 1.26 |
| Females (n = 50)   | -0.37 | 0.38 |
| Total (n = 99)     | 0.00  | 1.00 |

No significant effects were found for relational aggression. Table 18 summarizes the results of the ANOVA.

Table 18

*One-Way Analysis of Variance Summary Table for the Effects of Gender on Relational Aggression*

| Source | df | SS | MS | F | p | $\eta^2$ |
|--------|----|----|----|----|----|----|

| Source | df | SS | MS | F | p | $\eta^2$ |
|---|---|---|---|---|---|---|
| Between-group | 1 | 1.02 | 1.02 | 1.12 | .294 | .01 |
| Within-group | 91 | 82.98 | 0.91 | | | |
| Total | 92 | 84.00 | | | | |

A significant between gender difference was found for overt aggression, $F(1, 97)$ = 16.29, p = .000, $\eta^2 = .14$, suggesting that the mean level of overt aggression for males (M =0.38, SD = 1.26) is significantly higher than the mean level of overt aggression for females (M = -0.37, SD = 0.38). These results are summarized in Table 19.

Table 19

*One-Way Analysis of Variance Summary Table for the Effects of Gender on Overt Aggression*

| Source | df | SS | MS | F | p | $\eta^2$ |
|---|---|---|---|---|---|---|
| Between-group | 1 | 14.09 | 14.09 | 16.29* | .000 | .14 |
| Within-group | 97 | 83.91 | .84 | | | |
| Total | 98 | 98 | | | | |

**Research question 3:** Does the pattern of gender differences in aggressive strategies differ between primary and secondary levels?

**H3a:** For relational aggression, the difference between males and females decreases in the secondary, as compared to primary, school level.

**H3b:** Both males and females exhibit increasing amounts of relational aggression in the secondary, as compared to primary, school level.

**H3c:** Both males and females exhibit decreasing amounts of overt aggression in the secondary, as compared to primary, school level.

A gender by school level mixed design analysis of variance with aggression type as a within subjects dependent variable was conducted to determine whether the pattern of observed within and between gender differences in aggressive strategies changes over time. Mauchly's test was conducted. This test was not significant, suggesting that the

observed matrix did exhibit appropriately equal variances and covariances ($X^2 = .000$).
Table 20 provides the means and standard deviations for relational and overt aggression
by grade and school level.

Table 20

*Means and Standard Deviations for Aggression Type by Gender and School Level*

| Gender | School Level | Relational Aggression | | Overt Aggression | |
|---|---|---|---|---|---|
| | | M | SD | M | SD |
| Male (n=45) | Primary (n=24) | 0.37 | 1.04 | 0.86 | 1.53 |
| | Secondary (n=21) | -0.19 | 0.78 | 0.02 | 0.75 |
| | Total (n=45) | 0.11 | 0.96 | 0.46 | 1.29 |
| Female (n=48) | Primary (n=26) | -0.34 | 0.77 | -0.28 | 0.49 |
| | Secondary (n=22) | 0.18 | 1.08 | -0.46 | 0.18 |
| | Total (n=48) | -0.10 | 0.96 | -0.37 | 0.37 |
| Both Male and Female (n=93) | Primary (n=50) | 0.00 | 0.97 | 0.26 | 1.25 |
| | Secondary (n=43) | 0.00 | 0.95 | -0.23 | 0.59 |
| | Total (n=93) | 0.00 | 0.95 | 0.04 | 1.02 |

Significant within subjects interaction effects were identified for aggression type
by gender, $F(1, 93) = 11.14$, $p = .001$, $\eta^2 = .15$ and aggression type by school level, $F(1, 93) = 6.48$, $p = .013$, $\eta^2 = .09$. Table 21 summarizes the results of the analysis of variance.

To investigate the aggression type by gender interaction, a series of planned
contrasts were conducted. As previously discussed in Research Question 1, a comparison
of relational and overt aggression levels for males was significant, $F(1, 44) = 5.85$, $p = .020$, $\eta^2 = .12$, suggesting that the males in this sample exhibit higher levels of overt (M = 0.46, SD = 1.29) than relational aggression (M = 0.11, SD = 0.11). Additionally, as
previously discussed in Research Question 1, a comparison of aggression type for
females, was significant, $F(1, 47) = 4.01$, $p = .051$, $\eta^2 = .08$, suggesting that the females in
this sample exhibit higher levels of relational (M = -0.10, SD = 0.95) than overt
aggression (M = -0.37, SD = 0.37).

Table 21

*Summary Table for Gender by School Level Mixed Design ANOVA with Aggression Type as a Within Subjects Dependent Variable*

| Source | df | SS | MS | F | p | $\eta^2$ |
|---|---|---|---|---|---|---|
| | | | Between Subjects | | | |
| Gender | 1 | 11.07 | 11.07 | 8.94* | .004 | .08 |
| School Level | 1 | 3.19 | 3.19 | 2.580 | .112 | .02 |
| Gender X School Level | 1 | 8.72 | 8.72 | 7.04* | .009 | .07 |
| Error | 89 | 110.16 | 1.24 | | | |
| | | | Within Subjects | | | |
| Aggression Type | 1 | 0.03 | 0.03 | 0.080 | .779 | .00 |
| Aggression Type x Gender | 1 | 4.74 | 4.74 | 11.14* | .001 | .15 |
| Aggression Type x School Level | 1 | 2.76 | 2.76 | 6.48* | .013 | .09 |
| Aggression Type x Gender x School Level | 1 | 0.49 | 0.49 | 1.160 | .284 | .02 |
| Within cells | 89 | 23.41 | 0.28 | | | |
| Total | 93 | 31.43 | | | | |

To investigate the aggression type by school level interaction, a series of planned contrasts were conducted. One was significant; a comparison of relational and overt aggression levels at the secondary school level $t(48) = -3.35$, $p = .002$, $\eta^2 = .11$, indicating that at secondary level students exhibit more relational (M = 0, SD = 0.95) than overt (M = -0.23, SD = 0.59) aggression.

**Research question 4:** Are there significant differences in relational aggression levels by popularity type?

**H$_{4a}$:** Perceived popular individuals are more relationally aggressive than sociometrically popular individuals.

**Research question 5:** Does the difference in relational aggression level by popularity type differ between primary and secondary school levels?

**H₅ₐ:** Sociometrically popular and perceived popular groups exhibit similar and low levels of relational aggression during the primary school years.

**H₅ᵦ:** At the secondary school level, perceived popular students exhibit higher levels of relational aggression than do sociometrically popular students.

**H₅c:** At the secondary level, sociometrically popular individuals continue to exhibit low levels of relational aggression.

An analysis of variance was conducted to determine there are significant differences in level of relational aggression by popularity type and also by school level. Mauchly's test was run. This test was not significant, suggesting that the observed matrix did exhibit appropriately equal variances and covariances ($X^2 = .000$). Table 22 summarizes the means and standard deviations for perceived popular individuals at each sociometric popularity status by school level.

Table 22

*Means and Standard Deviations for Relational Aggression by School Level by Popularity Status (Perceived Popularity Status x Sociometric Popularity Status)*

| | Sociometric Popularity Status | Perceived Popular | | | Perceived Average | | | Perceived Unpopular | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | n | M | SD | n | M | SD | n | M | SD |
| Primary | Popular | 1 | 0.22 | -- | 5 | -0.91 | 0.88 | 0 | -- | -- |
| | Average | 3 | 0.05 | 1.06 | 30 | -0.40 | 0.67 | 4 | 0.84 | 0.76 |
| | Unpopular | 2 | 1.30 | 1.12 | 3 | 0.71 | 1.22 | 2 | 2.06 | 0.59 |
| | Total | 6 | 0.50 | 1.05 | 38 | -0.28 | 0.79 | 6 | 1.25 | 0.90 |
| Secondary | Popular | 1 | 0.35 | -- | 7 | -0.76 | 0.29 | 0 | -- | -- |
| | Average | 6 | 0.37 | 0.75 | 15 | 0.10 | 0.95 | 3 | -0.67 | 0.34 |
| | Unpopular | 0 | -- | -- | 3 | -0.28 | 1.08 | 4 | 1.05 | 1.33 |
| | Total | 7 | 0.36 | 0.68 | 25 | -0.19 | 0.89 | 7 | 0.32 | 1.33 |
| T | Popular | 2 | 0.28 | 0.10 | 12 | -0.48 | 0.67 | 0 | -- | -- |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Average | 9 | 0.26 | 0.81 | 45 | -0.24 | 0.80 | 7 | 0.20 | 0.99 |
| Unpopular | 2 | 1.30 | 1.12 | 6 | 0.21 | 1.17 | 6 | 1.39 | 1.86 |
| Total | 13 | 0.42 | 0.83 | 63 | -0.24 | 0.82 | 13 | 0.75 | 1.21 |

Two significant main effects were found, one for sociometric popularity status $F(2, 88) = 5.74$, p = .005, $\eta^2 = .10$ and one for perceived popularity status $F(2, 88) = 4.53$, p = 0.14, $\eta^2 = .08$. Table 23 summarizes the results of the analysis of variance. To determine where the differences lay, a series of planned contrasts were investigated to compare relational aggression levels within sociometric popularity statuses and also within perceived popularity statuses.

Table 23

*Summary Table for Two-Way Analysis of Variance: Effects of Popularity Type and School Level on Relational Aggression*

| Source | df | SS | MS | F | p | $\eta^2$ |
|---|---|---|---|---|---|---|
| Sociometric Popularity Status | 2 | 7.56 | 3.78 | 5.74* | .005 | .11 |
| Perceived Popularity Status | 2 | 5.96 | 2.98 | 4.53* | .014 | .08 |
| School Level | 1 | 1.93 | 1.93 | 2.94 | .091 | .03 |
| Sociometric Popularity Status x Perceived Popularity Status | 3 | 2.51 | 0.84 | 1.27 | .290 | .04 |
| Sociometric Popularity Status x School Level | 2 | 0.48 | 0.24 | 0.37 | .696 | .01 |
| Perceived Popularity Status x School Level | 2 | 2.75 | 1.38 | 2.09 | .131 | .04 |
| Sociometric Popularity Status x Perceived Popularity Status x School Level | 2 | 2.18 | 1.09 | 1.65 | .198 | .03 |
| Within cells | 74 | 48.67 | 0.66 | | | |
| Total | 88 | 72.03 | | | | |

To determine where the differences lay, a series of planned contrasts were investigated to compare relational aggression levels within sociometric popularity statuses and also within perceived popularity statuses.

Two contrasts were significant. First, a comparison of relational aggression levels between sociometric popularity status types was significant, $t(90) = 3.55$, p = .001, $\eta^2 = .12$ indicating that participants classified as sociometrically unpopular (M = 0.76, SD =

1.26 ) exhibit significantly more relational aggression than do participants classified as sociometrically popular (M = -0.25 , SD = 0.81 ) or sociometrically average (M = -0.12, SD = 0.82). Second, a comparison of relational aggression levels between perceived popularity status types was significant, $t(90) = 3.64$, $p = .000$, $\eta^2 = .13$ indicating that both perceived popular (M= 0.42, SD = 0.83) and perceived unpopular (M = 0.64, SD = 1.23) individuals exhibit higher levels of relational aggression than do individuals who were perceived as average (M = -0.22, SD = 0.83). No significant interaction effects were found.

**Reaction Measure**

While peer nomination tasks are widely used in the research literature as a means of assessing both aggression levels (overt and relational) and popularity status (sociometric and perceived), very little research has been conducted to determine the impact of these measures on participants. In fact, only four research groups (Bell-Dolan, Foster, & Christopher, 1992; Bell-Dolan, Foster, & Sikora, 1989; Hayvren & Hymel, 1984; Iverson, Barton, & Iverson, 1997) have previously investigated this issue. Therefore, a follow-up measure to actively investigate the potential for harm stemming the use of peer nomination instruments with the present sample was conducted as part of this study and is subsequently discussed.

Overall, participants reported talking to relatively few, or no, peers about the peer nomination worksheets. In fact, 34 percent reported that they did not discuss the worksheets with any of their peers while 39 percent reported that they discussed the worksheets with only one or two peers. Sixteen percent of participants reported talking to

three or four peers about the worksheets and 11 percent reported talking to five or more classmates about them. These results are summarized in Table 24.

Table 24

*Question 1: How many of your classmates did you talk to about the worksheets? (N=90)*

|  | Total | | Elementary (n=44) | | Secondary (n=46) | |
| --- | --- | --- | --- | --- | --- | --- |
| Rating | n | % | n | % | n | % |
| None | 31 | 34 | 20 | 45 | 11 | 24 |
| One or two | 35 | 39 | 13 | 30 | 22 | 48 |
| Three or four | 14 | 16 | 7 | 16 | 7 | 15 |
| Five or more | 10 | 11 | 4 | 9 | 6 | 13 |

When asked about what was said about the worksheets, 62 participants responded. Responses were coded into categories. Three participants gave responses that contained elements fitting into 2 or more categories. Consequently, 69 responses were categorized. The majority of responses (35%) indicated that participants, who talked about the study with others, talked about physical aspects of the study (i.e. being required to complete a worksheet). Fourteen percent of responses specified that participants discussed the purpose of the study. Four percent of responses indicated that participants discussed their feelings about the study (i.e. that it was a "waste of time"). Twelve percent of responses dealt with the reward for participation, while one respondent (1.5%) reported discussing the study topic (i.e. bullying is bad). Another response involved a participants surprise with how few persons participated in the study. Two respondents (3%) reported discussing their positive feelings about study participation. On the other hand, six respondents (9%) reported discussing the peer nominations (i.e. which peers were nominated as popular, aggressive, etc.). These results are summarized in Table 25.

Table 25

*Question 2: What was said about the worksheets?*

| Response | Number of responses | Percent of Total Responses |
|---|---|---|
| Physical aspects of the study (i.e. completing a worksheet, answering the same questions over and over) | 24 | 35% |
| Purpose of the study (i.e. what was the purpose of the worksheets, bully sheet) | 10 | 14% |
| Feelings about the study itself (i.e. waste of time) | 3 | 4% |
| Reward for participation (i.e. enjoyed getting candy for participating) | 8 | 12% |
| Implications of study topic (i.e. bullying is bad) | 1 | 1.5% |
| Number of participants (i.e. surprise about how few persons participated) | 1 | 1.5% |
| Positive feelings about participation (i.e. enjoyed participation) | 2 | 3% |
| "Nothing" (i.e. nothing because we did not talk about it; nothing was really said) | 14 | 20% |
| Peers who were nominated (i.e. peers who were nominated as popular, aggressive, etc.) | 6 | 9% |
| Total | 69 | 100% |

Seventy four percent of participants reported feeling good after talking to others about the study, while 20 percent reported that they "felt really good". Six participants (n = 4) reported feeling bad after talking to others about the study. These results are summarized in Table 26.

Table 26

*Question 3: After talking to others, how did you feel? (N=69)*

| | Total | | Elementary (n=29) | | Secondary (n=40) | |
|---|---|---|---|---|---|---|
| Rating | n | % | n | % | n | % |
| Felt bad | 4 | 6 | 2 | 7 | 2 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Felt good | 51 | 74 | 17 | 59 | 34 | 85 |
| Felt really good | 14 | 20 | 10 | 34 | 4 | 10 |

The majority of participants (62%) reported that their classmates did not talk to them about how they felt while 38 percent reported that their classmates had talked to them about how they felt. These results are summarized in Table 27.

Table 27

*Question 4: Did any of your classmates talk to you about how they felt? (N=87)*

| | Total | | Elementary | | Secondary | |
|---|---|---|---|---|---|---|
| Rating | n | % | N | % | n | % |
| Yes | 33 | 38 | 18 | 42 | 15 | 34 |
| No | 54 | 62 | 25 | 58 | 29 | 66 |

The majority of research participants (66%) reported that they enjoyed participating in the research project, endorsing ratings of "liked" or "liked a lot", while only 4 percent of research participants indicated that they did not enjoy project participation by endorsing ratings of "disliked" or "disliked a lot". Thirty percent of research participants reported neutral feelings about project participation. These results are summarized in Table 28.

Table 28

*Question 8: How much did you enjoy participating in the project?  (N=88)*

| | Total | | Elementary (n=43) | | Secondary (n=45) | |
|---|---|---|---|---|---|---|
| Rating | n | % | n | % | n | % |
| Disliked a lot | 2 | 2 | 1 | 2 | 1 | 2 |
| Disliked | 2 | 2 | 2 | 5 | 0 | 0 |
| Neutral | 26 | 30 | 6 | 14 | 20 | 45 |
| Liked | 31 | 35 | 13 | 30 | 18 | 40 |
| Liked a lot | 27 | 31 | 21 | 49 | 6 | 13 |

Participants who indicated that they either talked to their peers about the study, or were talked to by their participating peers about the study, were asked to indicate which

participating grade mates were discussed in a positive manner by. A three way between subjects analysis of variance was run on the resulting data to examine group differences for gender, sociometric popularity status and sociometric popularity status regarding "Who was complimented?" in order to determine if a particular group of subjects were more likely than other groups to discussed in a positive light after study participation. Higher numbers indicate that group members were more likely to be complimented. Table 29 provides the means and standard deviations for "Who was complimented?" by gender, sociometric popularity status and perceived popularity status.

Table 29

*Means and Standard Deviations for "Who was complimented?" by Gender, Sociometric Popularity Status and Perceived Popularity Status*

| | Sociometric Popularity Status | Perceived Popular | | | Perceived Average | | | Perceived Unpopular | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n | M | SD | n | M | SD | n | M | SD | n | M | SD |
| Male | Popular | 1 | 1 | -- | 6 | 1 | 0 | -- | -- | -- | 7 | 1 | 0 |
| | Average | 5 | 0.60 | 0.55 | 21 | 0.38 | 0.50 | 6 | 0.50 | 0.55 | 32 | 0.44 | 0.50 |
| | Unpopular | 2 | 0.50 | 0.71 | 5 | 0 | 0 | 3 | 0.33 | 0.58 | 10 | 0.20 | 0.42 |
| | Total | 8 | 0.63 | 0.52 | 32 | 0.44 | 0.50 | 9 | 0.44 | 0.53 | 49 | 0.47 | 0.50 |
| Female | Popular | 2 | 1 | 0 | 8 | 0.89 | 0.35 | -- | -- | -- | 10 | 0.90 | 0.32 |
| | Average | 4 | 0.75 | 0.50 | 27 | 0.41 | 0.50 | 3 | 0.33 | 0.58 | 34 | 0.44 | 0.50 |
| | Unpopular | 1 | 1 | -- | 1 | 1 | -- | 4 | 0.25 | 0.50 | 6 | 0.50 | 0.55 |
| | Total | 7 | 0.86 | 0.38 | 36 | 0.53 | 0.51 | 7 | 0.29 | 0.49 | 50 | 0.54 | 0.50 |
| Total | Popular | 3 | 1 | 0 | 14 | 0.93 | 0.27 | -- | -- | -- | 17 | 0.94 | 0.24 |
| | Average | 9 | 0.67 | 0.50 | 48 | 0.40 | 0.49 | 9 | 0.44 | 0.52 | 66 | 0.44 | 0.50 |
| | Unpopular | 3 | 0.67 | 0.58 | 6 | 0.17 | 0.41 | 7 | 0.29 | 0.49 | 16 | 0.31 | 0.48 |
| | Total | 15 | 0.73 | 0.46 | 68 | 0.49 | 0.50 | 16 | 0.38 | 0.50 | 99 | 0.51 | 0.50 |

No significant effects were found for gender, sociometric popularity status or perceived popularity status, indicating that all groups were equally likely to be discussed

in a positive manner after study participation. Table 30 summarizes the results of the ANOVA.

Table 30

*Summary Table for Three-Way Analysis of Variance: Effects of Gender, Sociometric Popularity Status, and Perceived Popularity Status on "Who was complimented?"*

| Source | df | SS | MS | F | p | $\eta^2$ |
|---|---|---|---|---|---|---|
| Gender | 1 | 0.13 | 0.13 | 0.58 | .449 | .00 |
| Sociometric Popularity Status | 2 | 1.08 | 0.54 | 2.44 | .094 | .05 |
| Perceived Popularity Status | 2 | 0.64 | 0.32 | 1.45 | .240 | .03 |
| Gender x Sociometric Popularity Status | 2 | 0.62 | 0.31 | 1.49 | .253 | .03 |
| Gender x Perceived Popularity Status | 2 | 0.67 | 0.33 | 1.50 | .229 | .03 |
| Sociometric Popularity Status x Perceived Popularity Status | 3 | 0.20 | 0.07 | 0.30 | .827 | .00 |
| Gender x Sociometric Popularity Status x Perceived Popularity Status | 3 | 0.34 | 0.12 | 0.52 | .671 | .01 |
| Error | 83 | 18.38 | 0.22 | | | |
| Total | 98 | 24.75 | | | | |

Participants who indicated that they either talked to their peers about the study, or were talked to by their participating peers about the study, were asked to indicate which participating grade mates were discussed in a demeaning manner by answering the question, "Who was teased, you know, made fun of?". A three way between subjects analysis of variance was run on the resulting data to examine group differences for gender, sociometric popularity status and sociometric popularity status regarding "Who was teased, you know, made fun of?" in order to determine if a particular group of subjects were more likely than other groups to discussed in a negative light after study participation. Higher numbers indicate that group members were more likely to be teased. Table 31 provides the means and standard deviations for "Who was teased, you know, made fun of?" by gender, sociometric popularity status and perceived popularity status.

Table 31

*Means and Standard Deviations for "Who was teased, you know, made fun of?" by Gender, Sociometric Popularity Status and Perceived Popularity Status*

| | Sociometric Popularity Status | Perceived Popular | | | Perceived Average | | | Perceived Unpopular | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n | M | SD | n | M | SD | n | M | SD | n | M | SD |
| **Male** | Popular | 1 | 0 | -- | 6 | 0.33 | 0.52 | -- | -- | -- | 7 | 0.29 | 0.49 |
| | Average | 5 | 0.60 | 0.55 | 21 | 0.29 | 0.46 | 6 | 0.83 | 0.41 | 32 | 0.44 | 0.50 |
| | Unpopular | 2 | 0.50 | 0.71 | 5 | 0.40 | 0.55 | 3 | 0.33 | 0.58 | 10 | 0.40 | 0.52 |
| | Total | 8 | 0.50 | 0.53 | 32 | 0.31 | 0.47 | 9 | 0.67 | 0.50 | 49 | 0.41 | 0.50 |
| **Female** | Popular | 2 | 0.50 | 0.71 | 8 | 0.13 | 0.35 | -- | -- | -- | 10 | 0.20 | 0.42 |
| | Average | 4 | 0.25 | 0.50 | 27 | 0.26 | 0.45 | 3 | 0.33 | 0.58 | 34 | 0.26 | 0.45 |
| | Unpopular | 1 | 0 | -- | 1 | 1 | -- | 4 | 0.25 | 0.50 | 6 | 0.33 | 0.52 |
| | Total | 7 | 0.29 | 0.49 | 36 | 0.25 | 0.44 | 7 | 0.29 | 0.49 | 50 | 0.26 | 0.44 |
| **Total** | Popular | 3 | 0.33 | 0.58 | 14 | 0.21 | 0.43 | -- | -- | -- | 17 | 0.24 | 0.44 |
| | Average | 9 | 0.44 | 0.53 | 48 | 0.27 | 0.45 | 9 | 0.67 | 0.50 | 66 | 0.35 | 0.48 |
| | Unpopular | 3 | 0.33 | 0.58 | 6 | 0.50 | 0.55 | 7 | 0.29 | 0.49 | 16 | 0.38 | 0.50 |
| | Total | 15 | 0.40 | 0.51 | 68 | 0.28 | 0.45 | 16 | 0.50 | 0.52 | 99 | 0.33 | 0.47 |

No significant effects were found for gender, sociometric popularity status or perceived popularity status, indicating that all groups were equally likely to be discussed in a positive manner after study participation. Table 32 summarizes the results of the ANOVA.

Table 32

*Summary Table for Three-Way Analysis of Variance: Effects of Gender, Sociometric Popularity Status, and Perceived Popularity Status on "Who was teased?"*

| Source | df | SS | MS | F | p | $\eta^2$ |
|---|---|---|---|---|---|---|
| Gender | 1 | 0.05 | 0.05 | 0.23 | .631 | .00 |
| Sociometric Popularity Status | 2 | 0.22 | 0.11 | 0.48 | .620 | .01 |
| Perceived Popularity Status | 2 | 0.06 | 0.03 | 0.14 | .870 | .00 |
| Gender x Sociometric Popularity Status | 2 | 0.37 | 0.18 | 0.82 | .446 | .02 |
| Gender x Perceived Popularity Status | 2 | 0.23 | 0.12 | 0.51 | .601 | .01 |
| Sociometric Popularity Status x Perceived Popularity Status | 3 | 0.95 | 0.32 | 1.41 | .247 | .04 |
| Gender x Sociometric Popularity Status x Perceived Popularity Status | 3 | 0.80 | 0.27 | 1.18 | .321 | .04 |
| Error | 83 | 18.75 | 0.23 | | | |
| Total | 98 | 22.00 | | | | |

Participants who indicated that they either talked to their peers about the study, or were talked to by their participating peers about the study, were asked to indicate which participating grade mates were aware that they had been discussed in a demeaning manner by their peers and, consequently, suffered hurt feelings by answering the question "Who got their feelings hurt?". A three way between subjects analysis of variance was run on the resulting data to examine group differences for gender, sociometric popularity status and sociometric popularity status regarding "Who got their feelings hurt?" in order to determine if a particular group of subjects were more likely than other groups to experience hurt feelings after study participation. Higher numbers indicate that group members were more likely to experience hurt feelings. Table 33 provides the means and standard deviations for "Who got their feelings hurt?" by gender, sociometric popularity status and perceived popularity status.

Table 33

*Means and Standard Deviations for "Who got their feelings hurt?" by Gender,
Sociometric Popularity Status and Perceived Popularity Status*

|  | Sociometric Popularity Status | Perceived Popular | | | Perceived Average | | | Perceived Unpopular | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | n | M | SD | n | M | SD | n | M | SD | n | M | SD |
| Male | Popular | 1 | 0 | -- | 6 | 0.17 | 0.41 | -- | -- | -- | 7 | 0.14 | 0.38 |
| | Average | 5 | 0.20 | 0.45 | 21 | 0.19 | 0.40 | 6 | 0 | 0 | 32 | 0.16 | 0.37 |
| | Unpopular | 2 | 0.50 | 0.71 | 5 | 0.20 | 0.45 | 3 | 0.33 | 0.58 | 10 | 0.30 | 0.48 |
| | Total | 8 | 0.25 | 0.46 | 32 | 0.19 | 0.40 | 9 | 0.11 | 0.33 | 49 | 0.18 | 0.39 |
| Female | Popular | 2 | 0 | 0 | 8 | 0 | 0 | -- | -- | -- | 10 | 0 | 0 |
| | Average | 4 | 0.25 | 0.50 | 27 | 0.11 | 0.32 | 3 | 0 | 0 | 34 | 0.12 | 0.33 |
| | Unpopular | 1 | 0 | -- | 1 | 0 | -- | 4 | 0.25 | 0.50 | 6 | 0.17 | 0.41 |
| | Total | 7 | 0.14 | 0.38 | 36 | 0.08 | 0.28 | 7 | 0.14 | 0.38 | 50 | 0.10 | 0.30 |
| Total | Popular | 3 | 0 | 0 | 14 | 0.07 | 0.27 | -- | -- | -- | 17 | 0.06 | 0.24 |
| | Average | 9 | 0.22 | 0.44 | 48 | 0.15 | 0.36 | 9 | 0 | 0 | 66 | 0.14 | 0.35 |
| | Unpopular | 3 | 0.33 | 0.58 | 6 | 0.17 | 0.41 | 7 | 0.28 | 0.49 | 16 | 0.25 | 0.44 |
| | Total | 15 | 0.20 | 0.41 | 68 | 0.13 | 0.34 | 16 | 0.13 | 0.34 | 99 | 0.14 | 0.35 |

No significant effects were found for gender, sociometric popularity status or perceived popularity status, indicating that all groups were equally likely to be discussed in a positive manner after study participation. Table 34 summarizes the results of the ANOVA.

Table 34

*Summary Table for Three-Way Analysis of Variance: Effects of Gender, Sociometric Popularity Status, and Perceived Popularity Status on "Who got their feelings hurt?"*

| Source | df | SS | MS | F | p | $\eta^2$ |
|---|---|---|---|---|---|---|
| Gender | 1 | 0.13 | 0.13 | 0.95 | .333 | .01 |
| Sociometric Popularity Status | 2 | 0.14 | 0.07 | 0.54 | .584 | .01 |
| Perceived Popularity Status | 2 | 0.02 | 0.01 | 0.09 | .914 | .00 |
| Gender x Sociometric Popularity Status | 2 | 0.13 | 0.07 | 0.50 | .610 | .01 |
| Gender x Perceived Popularity Status | 2 | 0.04 | 0.02 | 0.16 | .853 | .00 |
| Sociometric Popularity Status x Perceived Popularity Status | 3 | 0.26 | 0.09 | .646 | .588 | .02 |
| Gender x Sociometric Popularity Status x Perceived Popularity Status | 3 | 0.09 | 0.03 | 0.22 | .883 | .00 |
| Error | 83 | 11.01 | 0.13 | | | |
| Total | 98 | 12.02 | | | | |

**CHAPTER 5**

**Discussion**

The purpose of the study was to explore the complex web of relations between perceived popularity, sociometric popularity and relational aggression across a wide age span, and to investigate possible gender differences across different stages of development. Results of the statistical analyses used to test the hypotheses were mixed, with support provided for some of the hypotheses. Results of the major research questions are discussed in this section.

The first set of hypotheses examined differences in relational and overt aggression within each gender. A statistically significant interaction effect between gender and aggression type was found. In this sample, and as predicted, males were found to exhibit higher levels of overt aggression than relational aggression. While this finding seems intuitive, given the plethora of research indicating between gender differences in overt aggression favoring males, this phenomenon has been rarely studied. In fact, Klein and Goldsmith (2005) were the only researchers that directly investigated this question, finding that males preferentially engaged in overt, as opposed to relational aggression, during the developmental period from birth through grade 5. Other studies also provide indirect evidence for males' propensity for overt aggression. Crick and Grotpeter (1995) found that during the period of middle childhood males were overrepresented in the group of children identified to exclusively engage in overt aggression, as opposed to relational aggression or a combination of the two. Rys and Bear (1997) confirmed this finding in their middle childhood sample; however, they also found that males were

overrepresented in the group of children who exhibited high levels of both overt and relational aggression.

Additionally, females in this sample were found to exhibit higher levels of relational aggression than overt aggression. This finding is consistent with the results of previous studies that females preferentially engage in relational, as opposed to overt, aggression (Green, Richardson & Lago, 1996; Park, Essex, Waxler, Armstrong, Klein & Goldsmith, 2005; Putallaz, Grimes, Foster, Kupersmidt, Coie, & Dearing, 2007).

The second set of hypotheses examined between-gender differences in relational and overt aggression. A statistically significant gender difference was found for overt aggression. As predicted, males were found to exhibit higher levels of overt aggression than were females. This finding adds to the existing body of literature that has consistently found that males, of all ages engage, in significantly more overt aggression than do females (e.g., Archer, 2004; Björkqvist, Lagerspetz, Kaukiainen, 1992; Ostrov & Crick, 2007; Sandstrom & Cillessen; 2006).

On the other hand, males and females were found to exhibit comparable levels of relational aggression in this sample. This finding was unexpected given that the bulk of current research has found that females engage in higher levels of relational aggression than do males (Butovskaya, Timentschik, & Burkova, 2007; Campbell, Sapochnik & Muncer, 1997; Crick, 1997; Crick & Grotpeter, 1995; Galen & Underwood, 1997; Murray-Close, Crick & Galotti, 2006; Nelson, Robinson, & Hart, 2005; Ostrov & Crick, 1997). However, the current finding of no gender difference in levels of relational aggression is in line with the findings of several research groups (Duncan & Owen-Smith, 2006; Hart, Nelson, Robinson, Olsen, & McNeilly-Choque, 1998; Rys & Bear,

1997; Tomada & Schneider, 1997) and adds to this small, yet growing, base of research literature showing no gender difference in relational aggression.

The third set of hypotheses examined the pattern of gender differences in aggression type (relational and overt) between primary and secondary school levels. Statistically significant interaction effects were identified for aggression type by gender, which was discussed as part of the first set of hypothesis testing, and aggression type by school level. As hypothesized, students at the secondary school level were found to exhibit higher levels of relational, as opposed to overt, aggression. No difference in aggression type was identified at the primary school level.

Hawley's Social Dominance Theory, in conjunction with Social Cognitive Theory, can explain the phenomenon of preferential use of relational aggression over overt aggression in adolescents. Specifically, individuals use aggression as a means of resource competition. Over time, social learning, as well as the experiences of the direct consequences of their aggressive behavior, teaches children that overt aggression is associated with many risks and may not be worth the potential gain in resource access. Therefore, children's aggression may become more covert in nature as relational aggression levels increase because children and early adolescents have learned how to competitively gain access to resources while simultaneously avoiding the negative consequences associated with overt aggression. This is supported by the work of Cote, Vaillancourt, Baker, Nagin, and Tremblay (2007) who found that overt and relational aggression were used to a similar extent by preschool children identified as aggressive. However, over time, children who exhibited substantial levels of physical aggression during the early childhood period tended to exhibit increasing levels of relational

aggression. Moreover, levels of overt aggression also tended to decrease with age. While it was hypothesized that an overall decrease in overt aggression would be observed in the current sample, that was not the case. It is possible that this is reflective of a true difference in aggressive strategies for the current sample when compared with samples previously studied; however it is also possible that the expected decrease in overall overt aggression was not detected in the current sample due to the small sample size, which resulted in the study being underpowered.

In summary, the current study found that individuals at the secondary level exhibit higher levels of relational, as opposed to overt aggression; however, a decrease in overall levels of overt aggression from primary to secondary school was not detected in the current investigation.

The fourth set of hypotheses examined the relations between relational aggression and popularity type (sociometric and perceived) as a way of examining relational aggression within the peer context, given that, by definition, relational aggression seeks to disrupt peer relationships and, as such, cannot occur outside of the a group dynamic. Significant main effects were identified for both sociometric and perceived popularity. Contrary to expectations, individuals who are perceived as popular by the peer group were not found to exhibit higher levels of relational aggression than their sociometrically popular peers. The absence of this expected interaction effect is, probably due to the small sample size, which likely resulted in the study being underpowered. However, it is also possible that the absence of this hypothesized interaction effect is reflective of a true difference in the sample being studied when compared with previously studied samples.

Regardless, in this sample, participants classified as sociometrically unpopular, regardless of school level, were found to exhibit higher levels of relational aggression than either sociometrically popular or sociometrically average peers. While this finding was not hypothesized, it is in line with the recent research findings of Sandstrom and Cillessen (2005) that sociometric popularity was negatively related to all types of aggression in their sample of middle school students. Additionally, it suggests that sociometrically popular individuals do in fact exhibit low levels of relational aggression across the developmental periods of middle childhood and adolescence.

Additionally, the current study found that, regardless of school level, persons classified as both high or low on a measure of perceived popularity exhibited elevated levels of relational aggression. This is consistent with the findings of LaFontana and Cillessen (2002) who found that increased levels of relational aggression were linked with being perceived as unpopular in fourth and sixth grade for both genders while for fourth and fifth grade females, those perceived as either popular or unpopular exhibited elevated levels of relational aggression.

As previously discussed (Hawley, 1999; Pellegrini, 2008), perceived popular individuals occupy a position at the top of the social dominance hierarchy due to the fact that individuals of who have achieved perceived popular status have substantial access to group resources. This social position is achieved and maintained by the judicious use of both prosocial behavior and coercive resource control strategies (i.e. relational and overt aggression). For example, Merten (1997) found that perceived popular students occupied a precarious social position and were quite vulnerable to loosing their coveted social status if they failed to engage in prosocial behaviors such as mediating group level

conflict, and treating all members of the peer group, regardless of their popularity status, as if they were equals. Similarly, Elder (1985) also found evidence that while popular girls were described as friendly and nice by a majority of peers, others reported that these same girls were snobbish and unfriendly; based on these findings he went on to hypothesize that these popular girls were unable to interact with their less popular peers as frequently as was desired due to the many competing bids for their attention. These studies indicate that relational aggression occurs within the complex context of peer groups where multiple factors (e.g., social standing and prosocial behaviors) interact with relational aggression.

Individuals in the current sample who are perceived as unpopular also exhibited high levels of relational aggression as well; although it is not clear how they utilize relational aggression without social power within a peer context. A possible explanation based on Hawley's Social Dominance Theory is that these individuals may not effectively use coercive resource control strategies (i.e. relational aggression) along with more prosocial ones, thus experiencing negative peer perceptions. This possibility should be explored in future research.

The fifth set of hypotheses examined the difference in relational aggression for sociometric and perceived popularity status types (popular, unpopular, and average) by school level. Contrary to what was hypothesized, no school level effects were identified. While this finding could be specific to the current sample, as opposed to those previously studied, it is possible that the current small sample size resulted in insufficient power to detect the hypothesized interaction effect. Additionally, the current sample size was skewed so that primary school level students had many more participating grade mates

from which to nominate, as opposed to students at the secondary school level. This may have affected results as secondary school level students may not have been as familiar with other participating peers due to the much smaller number of students participating at each grade level.

While peer-nomination methods are frequently used in research to study both physical and relational aggression, little research exists on the possible effects of these measures on participants. The majority of participants who completed the SRQ-S reported that they did not discuss the research with their peers and only a small percentage of study participants (9%) self-reported discussing which peers they had nominated for a given item with their peers. The majority of participants (66%) reported enjoying project participation, while 30% reported neutral feelings about having participated in the research. Neither gender, perceived popularity status, nor sociometric popularity status differentiated among those students who were complimented, teased, or experienced hurt feelings as a result of study participation, suggesting that participation in the peer nomination research affected all groups similarly.

In summary, results of the reaction measure indicate that all groups were equally affected to an equal degree by study participation; however, there were a small minority of students whom their peers reported experienced undesirable outcomes (i.e., being teased and/or experiencing hurt feelings) as a result of study participation.

**Implications**

The findings of the current study have implications for psychologists, school personnel, parents and researchers alike. Current findings expand previous research showing that females preferentially engage in relational, as opposed to overt aggression,

while males exhibit the opposite pattern. Additionally, males exhibit more overt aggression than do females. Taken together, these findings indicate that gender is an important factor in understanding overt and relational aggression. No significant difference in relational aggression between males and females also suggest that we have to go beyond gender line in understanding relational aggression, not as a male or female form of aggression, but in general because its covert nature makes it difficult to bring to the attention of adults. Sadly, in my own experience as a school psychologist, when relational aggression is reported it is often ignored because the behavior was not directly observed by those with the power to intervene, nor does it leave visible scars.

Additionally, current findings indicate that students at the secondary school level preferentially engage in relational, as opposed to overt aggression. The aggressive behavior of older children and adolescents often goes undetected because, again, it is frequently not directly observed by adults and does not leave visible evidence of damage.

As many of us would predict, children and adolescents who exhibit elevated levels of relational aggression are frequently classified as sociometrically unpopular by their peer group, according to current study findings; and as the current study suggests, a portion of these relationally aggressive individuals are perceived as unpopular by their peer group as well. However, the structure of the peer group is very complex, and many relationally aggressive individuals concurrently enjoy elevated levels of perceived popularity as reflected in current study findings. Within the current sample, this pattern holds true regardless of school level or age. These findings are important because persons who are often sought after as friends (i.e. perceived popular individuals) are many times the same individuals who engaged in relational aggression. It is true that relational

aggression, by its very nature, occur as part of a group dynamic due to the fact that at its very core is a desire to inflict damage by disrupting social relationships. Therefore, our interventions must be targeted toward the peer group as a whole, and not merely specific individuals who are identified as exhibiting elevated levels of relational aggression. It is by changing the peer group dynamic that is accepting of relationally aggressive strategies that we have the best chance of intervening, and perhaps even preventing, the occurrence of relationally aggressive behavior.

While the current study found evidence that, for the most part, participants enjoyed study participation and experienced few, if any, ill effects as a result of study participation, further research is needed to evaluate the impact of participation in peer nomination research has on research subjects as this issue is still cause for debate. This research method should not be considered harm-free to participants until sufficient research data exists to support that hypothesis.

**Limitations**

This study was conducted at an upper elementary, middle, and high school within the same school district in a rural community in Michigan. Therefore, the findings may not be generalized to other same-aged students residing in different locals such as suburban or urban settings.

The sample size for this study was very small and included less than 10 percent of the students in each grade; therefore, it is likely that the sample is not representative of the population at large. Because participants were only permitted to nominate peers who had parental permission to participate in the study, it is likely that children who were high on a particular study characteristic (i.e. overt aggression, relational aggression,

sociometric popularity, perceived popularity) were not included in the sample which would skew the available sample of peers from which participants could nominate.

Additionally, students nominated only their participating peers regarding relational aggression, overt aggression, sociometric and perceived popularity. Use of peer nominations, especially in relation to limited sample size, is a significant limitation of the study as children who may have demonstrated high levels of aggression or popularity were not included. In fact, when completing the measures, study participants often asked if they could nominate peers other than those listed on the grade level list. This was particularly problematic in grades 9 through 12, where subjects often indicated on their peer nomination sheets that they were wholly unfamiliar with persons listed as grade-mates they could nominate for a give item.

Students whose parents provided consent to participate in the study may be different from their peers, which could have impacted the study findings. No data was available to explore possible differences between the two groups of students in terms of experiences with relational and overt aggression. Additionally, no information was available to explore possible differences between the two groups in terms of their perceptions of the sociometric and perceived popularity status of their peers.

Moreover, study measures were also completed in a group format. While this type of data collection is used frequently for collection of peer nomination data, it may have affected results. Despite the fact that participants were instructed not to discuss their answers and were seated several feet apart, it is possible that participants became aware of whom their peers were nominating for a given item, and this may have affected their responses.

There is one specific limitation to research with the SRQ-S. This self-report questionnaire was based on an instrument (Iverson, Barton, & Iverson, 1997) that used an interview format, enabling the researcher to ask follow-up questions of research participants in order to ensure that they correctly understood what was being asked. Due to the self-report, paper and pencil format of the SRQ-S, the principal investigator did not have the opportunity to ask follow up questions in order to determine if participants understood the content of a specific item(s).

**Future Directions: Relational Aggression**

Relational aggression is still a relatively new area of research in the aggression literature and merits further study, especially in relation to its causes and correlates. While both high and low levels of perceived popularity have been linked with elevated levels of relational aggression in the current study, as well as prior research (LaFontana & Cillessen, 2002; Prinstein & Cillessen, 2003; Sandstrom & Cillessen, 2006; Rose, Swenson, & Waller, 2004), more information is needed about this phenomenon, especially as it relates to intervention. Specifically, while current study findings indicate that it is possible to achieve sociometric popularity without engaging in elevated levels of relational aggression, is it possible to achieve perceived popular status without exhibiting high levels relational aggression? How are some individuals who exhibit elevated levels of relational aggression able to achieve/maintain high levels of perceived popularity while others are perceived as unpopular by the peer group? What specific behaviors, aside from engagement in relational aggression, differentiate persons high on sociometric popularity from sociometrically average or unpopular persons? While some research (Coie, Dodge, & Coppotelli, 1982; Parkhurst & Asher, 1992) has found differences in

prosocial behavior, how much is 'enough' to balance out the negative effect relational aggression can have on popularity status?

Additionally, the impact of gender and age on the relation between relational aggression and popularity status needs to be investigated as these factors may have particular bearing on the development of future interventions for this form of aggression. Moreover, as use of technology continues to spread among youth and children, the relation between relational and cyberbullying requires study in order to help develop both prevention programs and intervention techniques to address these often unseen, yet damaging, forms of aggression. Popularity status may factor into the interplay between relational aggression and cyberbullying as well. These issues are certainly multifaceted and any effective intervention program will need to take them into account.

**APPENDIX A**

Demographic Information Sheet

## Gender: (Please Circle One)

Male                    Female

## Grade Level: (Please Circle One)

$3^{rd}$          $4^{th}$                    $5^{th}$                    $6^{th}$                    $7^{th}$

$8^{th}$          $9^{th}$                    $10^{th}$                    $11^{th}$                    $12^{th}$

## Ethnicity: (Please Circle One)

Caucasian          African American          Asian American          Hispanic

Native American          Arabic American          Biracial          Other

## APPENDIX B

Peer Nomination Measure

**Which peers do you most enjoy spending time with?** (List all that apply)

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

**Which peers do you least enjoy spending time with?** (List all that apply)

_____  _____

_____  _____

_____  _____

_____  _____

_____  _____

_____  _____

_____  _____

_____  _____

_____  _____

_____  _____

_____  _____

_____  _____

**Who is the most popular kid in your grade?** (List all that apply)

| | |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Who is the least popular kid in your grade?** (List all that apply)

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

**Which kids do other students look up to and try to be like?** (List all that apply)

_____     _____

_____     _____

_____     _____

_____     _____

_____     _____

_____     _____

_____     _____

_____     _____

_____     _____

_____     _____

_____     _____

**Which students hit or push others at school?** (List all that apply)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

**Which students say or do nice things for other grade-mates?** (List all that apply)

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

**Which people, who when they are mad at a person, get even by keeping that person from being in their group of friends?** EXAMPLES: (1) Say you're going to a party with some friends, and someone says "lets invite some kid", we want you to pick someone who would say "NO, I don't want to invite that kid because I'm mad at them", (2) Pick someone who would say to a kid "I'm going to the mall with my friends and you can't come, because I'm mad at you".  (List all that apply)

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

**Which people give help to those who need it?** (List all that apply)

_____      _____

_____      _____

_____      _____

_____      _____

_____      _____

_____      _____

_____      _____

_____      _____

_____      _____

_____      _____

_____      _____

**Which people let their friends know that they will stop liking them unless the friends do what they want them to do?** (List all that apply)

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

**Which people, when they are mad at a person, ignore the person or stop talking to them?** (List all that apply)

| | |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Which students try to cheer up other classmates who are upset or sad about something? They try to make them feel happy again.** (List all that apply)

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

**Which students start physical fights with others?** (List all that apply)

_____    _____

_____    _____

_____    _____

_____    _____

_____    _____

_____    _____

_____    _____

_____    _____

_____    _____

_____    _____

_____    _____

_____    _____

**Which students try to exclude or keep certain people from being in their group when doing things together (like having lunch in the cafeteria or going to the movies)?** EXAMPLES: (1) Say you're in the cafeteria eating with your friends and someone says "lets ask that kid to sit with us" we want you to pick someone who would say "NO, I don't want that kid to sit with us", (2) Pick someone who would say to a kid "I'm going to the movies with my friends and you can't come". (List all that apply)

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

_____        _____

**Which grade-mates yell or call other classmates mean names?** (List all that apply)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

**Which students try to make another kid not like a certain person by spreading rumors about them or talking behind their backs?** (List all that apply)

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

_____          _____

**APPENDIX C**

Technology Use and School Behavior Questionnaire

A. Please answer the questions below by shading one answer for each question.

| | | | | |
|---|---|---|---|---|
| Do you have a computer? | Yes (1) | No (2) | | |
| If you have a computer in your house, where is it located? | Your Room (1) | Kitchen (2) | Family Room (3) | Other (4) |
| Are you allowed to use the computer? | Yes (1) | No (2) | | |
| Are there any parental monitors (blocked websites) on your computer? | Yes (1) | No (2) | Don't know (3) | |
| Do you have an email account? | Yes (1) | No (2) | | |
| Do you instant message? | Yes (1) | No (2) | | |
| Do you have a cell phone? | Yes (1) | No (2) | | |
| Does your cell phone have text messaging? | Yes (1) | No (2) | | |
| Do you text message? | Yes (1) | No (2) | | |
| Do you have a personal web page (e.g. myspace, facebook)? | Yes (1) | No (2) | | |

_____

B. Please use the scale below to indicate how often you engage in each of the listed behaviors.

| | 0 Never | 1 Less than once a month | 2 Once or a few times a month | 3 Once of a few times a week | 4 Daily of almost every day | 5 Several times a day |
|---|---|---|---|---|---|---|
| I am tardy for school. | (0) | (1) | (2) | (3) | (4) | (5) |
| I am absent from school. | (0) | (1) | (2) | (3) | (4) | (5) |
| I am suspended from school. | (0) | (1) | (2) | (3) | (4) | (5) |
| I fight in school. | (0) | (1) | (2) | (3) | (4) | (5) |

**APPENDIX D**

Sociometric-Risk Questionnaire: Self-Report

1. **How many of your classmates did you talk to about the worksheets?**

   a.) none      b.) one or two      c.) three or four      d.) five or more

2. **What was said about the worksheets?**

   _____

   _____

   _____

   _____

   _____

3. **After talking to others, how did you feel?**

   1 = felt really bad      2 = felt bad      3 = felt good      4 = felt really good

4. **Did any of your classmates talk to you about how they felt?**

   Yes            No

5. **Who was complimented?** (PLEASE USE CODE NUMBERS)

   _____

   _____

   _____

   A.    **How did it turn out in the end?**

   POSITIVE            NEUTRAL            NEGATIVE

**6. Who was teased, you know, made fun of?** (PLEASE USE CODE NUMBERS)

 

 

 

A. **How did it turn out in the end?**

POSITIVE           NEUTRAL           NEGATIVE

**7. Who got their feelings hurt?** (PLEASE USE CODE NUMBERS)

 

 

 

A. **How did it turn out in the end?**

POSITIVE           NEUTRAL           NEGATIVE

**8. How much did you enjoy participating in the project?**

1 =disliked a lot     2 = disliked  3 = neutral  4 = liked     5 = liked a lot

**9. Would you like to participate in a similar project in the future?**

YES           NO           MAYBE

**APPENDIX E**

**Central Montcalm Parental Permission/Research Informed Consent**
Title of Study: Relational Aggression and Popularity Status Study

**Purpose:**
You are being asked to allow your child to be in a research study at their school that is being conducted by Lisa J. Woodcock, Ph.D. candidate in the Educational Psychology, from Wayne State University to investigate the relationship between relationally aggressive behavior and two types of popularity. Relationally aggressive behavior can be defined as: hurting others by damaging their relationships with peers or by threatening to damage those relationships. Examples of this type of aggression include: spreading rumors with the intent of causing peers to reject the target, withholding friendship intending to inflict harm, and excluding a child from an intimate group of friends. This study will be conducted at Central Montcalm Public Schools. The estimated number of study participants to be enrolled at Central Montcalm Public School is about 400 participants. Your child has been selected because he or she is currently enrolled in third through twelfth within the Central Montcalm School District.

**Study Procedures**:
If you decide to allow your child to take part in the study, your child will be asked to

- Complete peer-rating questionnaires regarding aggressive behavior, and popularity status.
    - o To assess aggressive behavior, students will have the opportunity to nominate only participating grade-mates on items such as "kids who hit or push others at school", "kids who start physical fights with others", "people who, when they are mad at a person, ignore the person or stop talking to them" and "people who, when they are mad at a person, get even by keeping that person from being in their group of friends".
    - o With regard to popularity status assessment, students will have the opportunity to nominate only participating grade mates on items such as "who are the most popular kids in your grade", "who are the least popular kids in your grade", "which peers do you most enjoy spending time with", and "which peers do you least enjoy spending time with".
    - o Approximately four weeks after the completion of peer nomination instruments, participants will be asked to complete a brief survey regarding reactions to the study. Participants will be asked questions regarding how many of their classmates they spoke to about the worksheets, what was said about the worksheets, their emotional reaction to the worksheets and their emotional reaction regarding what was said about the worksheets.
    - o Participants will be asked to complete all study questions, however if a child does not wish to answer a particular item(s) he or she may skip those items. Furthermore, your child may withdraw from the

study at any time without penalty. Completion of questionnaires will take approximately 30 minutes during the initial phase of data collection. Questionnaires will be completed in a small group setting composed of grade-mates. At a second, follow-up visit to take place approximately 4 weeks after the initial phase of data collection, participants will complete a brief questionnaire detailing reactions to the study. This reaction questionnaire will take approximately 15 minutes to complete.

o Copies of study materials will be available in the main offices of each participating school (Central Montcalm Upper Elementary, Central Montcalm Middle School, and Central Montcalm High School).

**Benefits:**
There may be no direct benefits for your child; however, information from this study may benefit other people now or in the future.

**Risks:**
By taking part in this study, your child may experience the following risks: increased awareness of his or her popularity status within the peer group, sad and/or distressed feelings regarding his/her peer group status. Your child may also have fears regarding children discussing study questions and be afraid that teasing may result.

If your child experiences any of these risks, he or she should talk to a "safe person" such as a parent, teacher, school principal, paraprofessional, or other adults with whom your child has a trusting relationship.

The following information must be released/reported to the appropriate authorities if at any time during the study there is concern that:

o Child abuse or elder abuse has possibly occurred
o Your child discloses illegal criminal activity, illegal substance abuse or violence.

There may also be risks involved from taking part in this study that are not known to researchers at this time.

**Costs**
There are no costs to you or your child to participate in this study.

**Compensation:**
o For taking part in this research study, your child will receive a small gift as a token of appreciation after each data collection session. All children who receive permission to participate, regardless of whether they actually participate in study procedures, will also be entered into a drawing for a $10 gift card to a local merchant. The odds of winning will be at least 1 in 9.

**Confidentiality:**
- o All information collected about your child during the course of this study will be kept confidential to the extent permitted by law.
- o Your child will be identified in the research records by a code name or number. Information that identifies your child personally will not be released without your written permission. However, the study sponsor (if applicable), the Human Investigation Committee (HIC) at Wayne State University or federal agencies with appropriate regulatory oversight (Office for Human Research Protections [OHRP], Office of Civil Rights [OCR], etc.), may review your child's records.

**Voluntary Participation /Withdrawal**:
Your child's participation in this study is voluntary.  You may decide that your child can take part in this study and then change your mind.  You are free to withdraw your child at any time. Your decision about enrolling your child in the study will not change any present or future relationships with Wayne State University or its affiliates, your child's school, your child's teacher, your child's grades or other services you or your child are entitled to receive.

**Questions:**
If you have any questions about this study now or in the future, you may contact Lisa J. Woodcock or one of her research team members at the following phone number (517) 304-0059. If you have questions or concerns about your rights as a research participant, the Chair of the Human Investigation Committee can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call (313) 577-1628 to ask questions or voice concerns or complaints.

**Consent to Participate in a Research Study:**
To voluntarily agree to have your child take part in this study, you must sign on the line below.  If you choose to have your child take part in this study, you may withdraw them at any time.  You are not giving up any of your or your child's legal rights by signing this form.  Your signature below indicates that you have read, or had read to you, this entire consent form, including the risks and benefits, and have had all of your questions answered.  You will be given a copy of this consent form.

_____          _____          _____

Name of Participant                                                      Date of Birth                                              Grade of Participant:

_____          _____

Signature of Parent/ Legally Authorized Guardian                 Date

_____          _____

Printed Name of Parent Authorized Guardian                     Time

_____     _____
*Signature of Parent/ Legally Authorized Guardian     Date

_____     _____
Printed Name of Parent Authorized Guardian     Time

_____     _____
**Signature of Witness (When applicable)     Date

_____     _____
Printed Name of Witness     Time

_____     _____
Oral Assent (children age 7-12) obtained by     Date

_____     _____
Signature of Person Obtaining Consent     Date

_____     _____
Printed Name of Person Obtaining Consent     Time

* Both parent's signatures should be obtained however both are **required** for level 3 studies


** Use when parent/guardian has had consent form read to them (i.e., illiterate, legally blind, translated into foreign language).

**APPENDIX F**

**Documentation of Adolescent Assent Form**
(ages 13-17)

**Title: Relational Aggression and Popularity Status Study**

**Study Investigator: Lisa J. Woodcock**

**Why am I here?**
This is a research study.  Only people who choose to take part are included in research studies.  You are being asked to take part in this study because you are a student within the Central Montcalm School District.    Please take time to make your decision.  Talk to your family about it and be sure to ask questions about anything you don't understand.

**Why are they doing this study?**
This study is being done to find out about how kids treat each other and what behaviors are related to popularity.

**What will happen to me?**
You will be asked to complete several questionnaires in a large group setting. During the first session, you will be asked to nominate participating classmates on various items such as: "being well-liked", "starting fights", and the like. During the second session, you will be asked to complete a questionnaire about your experiences during and after the first data collection session.

**How long will I be in the study?**
You will be in the study for approximately 1 month, during which time 2 assessment visits will occur. These assessment visits will last between 15 and 30 minutes each.

**Will the study help me?**
- You will not benefit from being in this study; however information from this study may help other people in the future by helping adults understand better understand aggression/bullying behaviors in kids your age in order to prevent it from happening to other kids in the future.

**Will anything bad happen to me?**
By participating in this study, you may become more aware of your popularity status or the degree to which you are well-liked by others. You may also experience sad or upset feelings regarding your popularity status. You may also be afraid that other participating classmates will discuss study questions and that you may be teased as a result.

If you do experience any of these feelings, talk to a "safe person". This person can be your parent, teacher, a classroom paraprofessional, school principal or other adult with whom you have a trusting relationship.

**<u>Will I get paid to be in the study?</u>**
For taking part in this research study, you will receive a small token of appreciation (i.e. a snack sized candy bar) after participation in each phase of the study. There are 2 study phases. Since you have received parental permission to participate in the study, you will also be entered into a drawing for a $10 gift card to a local store, regardless of whether or not you choose to participate in the study. The odds of winning the gift card are at least 1 in 9.

**Do my parents or guardians know about this? (If applicable)**

This study information has been given to your parents/guardian and they said that you could be in it. You can talk this over with them before you decide.

**What about confidentiality?**
We will keep your records private unless we are required by law to share any information. The law says we have to tell someone if you might hurt yourself or someone else. The researcher can use the study results as long as you cannot be identified.

The following information must be released/reported to the appropriate authorities if at any time during the study there is concern that:
   o   child abuse or elder abuse has possibly occurred,
   o   you disclose illegal criminal activity, illegal substance abuse or violence.

**What if I have any questions?**
For questions about the study please call Lisa Woodcock at (517) 304-0059. If you have questions or concerns about your rights as a research participant, the Chair of the Human Investigation Committee can be contacted at (313) 577-1628.

**<u>Do I have to be in the study?</u>**
You don't have to be in this study if you don't want to or you can stop being in the study at any time. Please discuss your decision with your parents and researcher. No one will be angry if you decide to stop being in the study.

AGREEMENT TO BE IN THE STUDY

Your signature below means that you have read the above information about the study and have had a chance to ask questions to help you understand what you will do in this study. Your signature also means that you have been told that you can change your mind later and withdraw if you want to. By signing this assent form you are not giving up any of your legal rights. You will be given a copy of this form.

_____ _____
Signature of Participant  (13 yrs & older)                                                        Date

_____
Printed name of Participant (13 yrs & older)

_____ _____
**Signature of Witness (When applicable)                                          Date

_____
Printed Name of Witness

_____ _____
Signature of Person who explained this form                                     Date

_____
Printed Name of Person who explained form

** Use when participant has had consent form read to them (i.e., illiterate, legally blind, translated into foreign language).

**APPENDIX G**

Mental Health Resources in Montcalm County

- The Montcalm Center for Behavioral Health
  611 N. State St.
  Stanton, MI 48888
  (989) 831-7520

- Transitions Counseling Services
  507 S. Nelson St.
  Greenville, MI 48838
  (616) 754-9420

- North Kent Guidance Services
  106 S. Greenville West Dr.
  Greenville, MI 48838
  (616) 754-2364

- Center for Human Potential
  620 N. State St.
  Suite A
  Stanton, MI 48888
  (989) 831-9111

- Community Hope Christian Counseling and Mental Health Center
  6728 Vining Rd.
  Greenville, MI 48838
  (616) 225-8220

**APPENDIX H**

Primary Investigator Letter of Introduction

Dear Sir or Madame,

My name is Lisa Woodcock and I am a graduate of Central Montcalm High School. I am currently pursuing my Ph.D. in educational psychology at Wayne State University and am in the process of conducting my dissertation research. I will be studying relational aggression and its relationship with popularity in both boys and girls, grades 3-12. I will be conducting this research at Central Montcalm Upper Elementary School, Central Montcalm Middle School and Central Montcalm High School.

You may be asking yourself, what is relational aggression? In answer, I ask you to think of middle school girls who use relationships themselves as a weapon using statements such as "you can't come to my party because I'm mad at you", and "I won't be your friend unless…"; tactics such as becoming friends with someone as a way to get back at someone else also characterizes this form of aggression.

This area of research is important because this form of aggression can have very lasting effects and often creates deep scars. By completing my dissertation research in this area, I hope to add to the body of knowledge that will one day lead to the development of effective interventions which specifically target this form of aggression in order to save future generations from its lasting effects and to heal the damage that has already been done to its victims.

The reason I chose Central Montcalm as a research site is because I completed a similar study within this district in 2005, as part of my Master's Degree program and the community was both receptive of and eager to participate in this type of research. I sincerely hope that you will consider allowing your child to participate in this study.

Attached, please find a consent form that must be signed and returned in the self-addressed stamped envelope provided in order for you to grant your consent for your child's participation. If you wish to review study instruments before granting your permission for study participation, copies of all research instruments will be available for review within the main office at your child's school.

If you have any questions or I can be of any further assistance, please feel free to contact me by phone at (517) 304-0059 or email [lwoodcock1981@yahoo.com](mailto:lwoodcock1981@yahoo.com)

Sincerely,

Lisa Woodcock

**APPENDIX I**

Child Assent Form (Ages 7 – 12)


I would like to participate in the Relational Aggression and Popularity Status study.


_____          _____
Signature                                                     Date

**APPENDIX J**

Script to Obtain Child/Adolescent Assent and Survey Directions

**Beginning of First Data Collection Session:**

Hi. My name is Ms. Woodcock. You are all here because you have received parental permission to participate in the Relational Aggression and Popularity Status study. This study looks at ways kids interact with others and how that is related to how much kids are liked by others and whether or not they are popular. During this study, you will be asked to nominate your participating peers on many different behavioral characteristics. Your participation is voluntary and you may skip any item(s) that you do not feel comfortable answering. The first page, is an assent sheet. While your parent's have given you their permission to participate, I'd also like you to "give yourselves permission" to participate by signing this sheet, stating that you want to participate. You do not have to participate in this study if you do not want to and there will be no negative consequences if you decline to participate. Do you have any questions?

Many of the items you will be nominating your peers on deal with sensitive topics such as how well-liked or popular someone is, or who engages in aggressive behaviors. I want you to know that your answers will be kept confidential by me. That means only you and I will know your answers. However, while I will know your answers, I will not know that it was you who gave them because your name is not on any of these measures. It will also be very important that you do not discuss your answers with each other as that might cause someone's feelings to get hurt. I do encourage you to share your answers with a trusted adult, such as your parent, if you so choose. Keep in mind the 6 "Pillars of Character": Trustworthiness, responsibility, fairness, respect, caring and citizenship. These pillars tell us how to be a good friend/classmate to others. Do you have any questions?

You have a separate answer sheet for each item and the question is printed at the top of the page. I will read each item and you can follow along, listing the code number of the persons you wish to nominate. If you do not wish to nominate any participating students for a given item, please write 'none' on the page. The code numbers are listed along the right hand side of the page. Only students with parental permission to participate are listed and can be nominated. Do you have any questions? If you have any questions while we are completing the items, please raise your hand and I will be around to assist you.

**End of First Data Collection Session:**
I want to thank you all for participating in this study. As a token of my appreciation, you will each receive a snack-sized piece of candy. I want to remind you that I will not share your answers with anyone unless you told me that you are hurting someone or that someone is or has hurt you. I also want to remind you to be good friends and use the skills you been practicing as part of the "Pillars of Character"

program. Do not discuss your responses with each other as that might cause someone's feelings to be hurt. However, I want to encourage you to talk to a trusted adult, such as a parent or teacher, regarding your thoughts and feelings about the questions you answered today.  Do you have any questions?

I'll be back in about a month to complete the second phase of the study. See you all soon.

**APPENDIX K**

Sociometric-Risk Questionnaire: Self-Report Directions

**Beginning of Second Data Collection Session:**
Think back to the worksheets you completed several weeks ago and answer the
following questions. Remember to list the code number that corresponds with the
peer you wish to list for each question. If you have any questions, please raise your
hand and I will be around to assist you.

**End of Second Data Collection Session:**
Thank you for your participation in the study.

**APPENDIX L**

School Approval

# Central Montcalm Public School
# Board of Education

1480 S. Sheridan Rd. / P.O. Box 9   Stanton, Michigan 48888
Phone: (989) 831-2000   Fax: (989) 831-2010

www.central-montcalm.org

October 7, 2009

Ms. Lisa Woodcock
3121 Dexter Road
Ann Arbor, MI   48103

In re:    Relational Aggression and Student Perceived Popularity Study

Dear Ms. Woodcock:

After having met with you and reviewing documentation you have submitted concerning the above-mentioned study as a part of your dissertation, it is without reservation that I authorize your use of the Upper Elementary School and the Middle School / High School as your research sites for your study. I understand it will be necessary to acquire Parental Permission /Research Informed Consent prior to any interaction with the students.

Your contacts are listed on the attached sheet. The principals will facilitate your having access to the necessary student data in order to implement your study.

It is my understanding that you will share your conclusions with the Central Montcalm Public School District. Should you need anything further, do not hesitate to contact me.

Sincerely,

Jacob J. Helms
Superintendent

cc:    Ms. Susan Koster, Principal of CMUE
       Mr. Tom Torok, Principal of CMMS
       Mr. John Kearney, Principal of CMHS

CREATING A 21ST CENTURY LEARNING COMMUNITY

**APPENDIX M**

Human Investigation Committee Approval

**WAYNE STATE UNIVERSITY**

**HUMAN INVESTIGATION COMMITTEE**
87 East Canfield, Second Floor
Detroit, Michigan 48201
Phone: (313) 577-1628
FAX: (313) 993-7122
http://hic.wayne.edu

FILE

## NOTICE OF FULL BOARD APPROVAL

To: Lisa Woodcock
Theoretical & Behavior Foundations
400 Strathmore

From: Dr. Scott Millis
Chairperson, Behavioral Institutional Review Board (B3)

Date: December 03, 2010

RE: HIC #: 104110B3F

Protocol Title: Relational Aggression and Popularity Status Study

Sponsor:

Protocol #: 1010008911

Expiration Date: November 17, 2011

Risk Level / Category: 45 CFR 46.404 - Research not involving greater than minimal risk

The above-referenced protocol and items listed below (if applicable) were **APPROVED** following *Full Board Review* by the Wayne State University Institutional Review Board (B3) for the period of 12/03/2010 through 11/17/2011. This approval does not replace any departmental or other approvals that may be required.

- Introduction Script
- Documentation of Adolescent Assent Form (dated 11/29/10)
- Central Montcalm Parental Permission/Research Informed Consent (dated 11/29/10)

* Federal regulations require that all research be reviewed at least annually. You *may* receive a *"Continuation Renewal Reminder"* approximately two months prior to the expiration date; however, it is the Principal Investigator's responsibility to obtain review and continued approval *before* the expiration date. Data collected during a period of lapsed approval is unapproved research and can never be reported or published as research data.

* All changes or amendments to the above-referenced protocol require review and approval by the HIC **BEFORE** implementation.

* Adverse Reactions/Unexpected Events (AR/UE) must be submitted on the appropriate form within the timeframe specified in the HIC Policy (http://www.hic.wayne.edu/hicpol.html).

NOTE:

1. Upon notification of an impending regulatory site visit, hold notification, and/or external audit the HIC office must be contacted immediately.
2. Forms should be downloaded from the HIC website at each use.

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# ABSTRACT

## RELATIONAL AGGRESSION AND POPULARITY

by

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May 2012

**Advisor:** Dr. Jina Yoon, Ph.D.

**Major:** Educational Psychology

**Degree:** Doctor of Philosophy

The purpose of this study was to examine the relation between perceived popularity, sociometric popularity and relational aggression across a wide age span, and to investigate gender differences across different stages of development. Students (n = 99) in grades 3 through 12, from a rural school district in mid-Michigan, participated in the study. Data were collected during the 2010-2011 school year.

Statistically significant within gender differences were found for relational and overt aggression, indicating that males exhibited higher levels of overt than relational aggression and females exhibited higher levels of relational than overt aggression. No statistically significant between gender differences were found for relational aggression. There was a statistically significant between gender difference for overt aggression, indicating that males are more overtly aggressive than are females. A statistically significant interaction effect was identified for aggression type by school level, suggesting that secondary level students exhibit more relational than overt aggression. When looking at relational aggression levels by

popularity type and school level, statistically significant main effects were identified for sociometric and perceived popularity, indicating that individuals who are high on sociometric popularity exhibit low levels of relational aggression while persons with either high or low levels of perceived popularity exhibit elevated levels of relational aggression. No interaction effects were identified.

A reaction measure indicated that children of all perceived and sociometric popularity status groups were equally likely to be complimented, teased, or have their feelings hurt as a result of the study; however, results also indicate that very few students experienced undesirable outcomes as a result of study participation. Little research to date has investigated differences in relational aggression levels, or the relationship between popularity status types and aggressive strategies, across such a wide age span. Far less research has actively investigated the effects of participation in a peer nomination task. The study provides support for the importance of research addressing the link between aggressive strategies and popularity status as well as the importance of research examining the effects of participation in peer nomination research.

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## EDUCATION

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