

THE DIVERSE ADOLESCENT RELATIONAL AGGRESSION SCALE: DEVELOPMENT AND  
VALIDATION

by

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## ABSTRACT

### THE DIVERSE ADOLESCENT RELATIONAL AGGRESSION MEASURE: DEVELOPMENT AND VALIDATION

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Relational aggression (RA) includes rumor spreading, social isolation, talking behind someone's back, staring, and threats to withdraw friendship. RA is associated with verbal and physical aggression, and these aggression subtypes are often assessed together. This research developed and validated the *Diverse Adolescent Relational Aggression Scale* to assess RA in diverse populations. The population consisted of 191 students from 9<sup>th</sup>-12<sup>th</sup> grade (predominantly African American) from schools located in the south-suburban Independent School District of a major southern city. The measure consisted of 28-items developed from relational aggression research.

Factor analysis, reliability tests, t-tests, and correlations were conducted on the data. The results indicated that The Relational Aggression Scale is valid and reliable for the Alternative School Group and the High School Group. Findings suggest that the Alternative School Group had higher scores on the *Diverse Adolescent Relational Aggression Scale* than the High School Group, but these differences were not significant. Additionally, the scale was more reliable for the High School Group than the Alternative School Group. Implications for further research and practice are discussed.

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## CHAPTER 1

### INTRODUCTION

Since the Columbine High School shootings, the United States has experienced a heightened awareness of aggression and violence in schools. According to the US National School Safety Center's Report on School Associated Violent Deaths (2007), during the school years 1992/1993 through 2006/2007, there were 50 deaths in (or around) elementary schools and 363 deaths in (or around) secondary schools. Incidents of other violence in schools are just as numerous throughout any given school year. In another report during the 2003/2004 school year, 74% of primary schools, 94% of middle schools, and 96% of high schools in the US reported incidents of crime and violence on campus (Guerino, Hurwitz, Noonan, Kaffenberger, & Chandler, 2006).

Students have found themselves in the roles of victim, protector, and attacker. In 2005, the Center for Disease Control found that 6.5% of students surveyed reported they had carried a weapon on school property within the last 30 days (Eaton et al., 2005). In US schools, between the years 1993-2005, 7-9% of students have consistently reported being threatened or injured with a weapon on school property (Dinkes, Cataldi, Kena, & Baum, 2006). Additionally, attacks by students on teachers are becoming common in US schools. In the 2003/2004 school year alone, 6% of urban teachers, 10% of suburban teachers, and 5% of rural teachers reported that they were threatened with injury by students (Dinkes, Cataldi, Kena, & Baum, 2006). Further, approximately 30% of US students experienced either overt or relational aggression as the target or perpetrator (Nansel, Overpeck, Pilla, Ruan, Simmons-Morton, & Scheidt, 2001), and approximately 75% of secondary students have been victims of overt aggression and social/relational aggression (e.g. Hoover, Oliver, & Hazler, 1992; Kaufman et al., 1999).

Although the above statistics on school violence appear extremely high, incidents of school violence and aggression have constantly decreased within the past decade (<http://tojou.wetpaint.com/page/Overview+of+School+Violence:+Causes+and+Current+Statistics>). Although school violence has been decreasing, bullying is prominent in schools and a strong predictor of school violence (DeVoe & Chandler, 2005). There have been national initiatives aimed at decreasing school violence, and national prevention measures designed to decrease/eliminate bullying in schools.

Safe Schools Initiative. In the US, there have been a number of initiatives developed in an attempt to address the rising problem of aggression and violence in schools. In 2002, the US Department of Education, in conjunction with the Secret Service, developed the Safe Schools Initiative. This initiative reviewed police records, school records, court documents, interviews with school shooters, and other sources in an attempt to develop background information or a profile about the school shooter's pre-attack behaviors and communications. The goal of this analysis was to develop information that would possibly prevent school-based attacks ([http://www.secretservice.gov/ntac\\_ssi.shtml](http://www.secretservice.gov/ntac_ssi.shtml)).

One of many Safe Schools Initiative studies was conducted in collaboration with the U.S. Department of Education, Office of Elementary and Secondary Education, Safe and Drug-Free Schools Program, and the U.S. Secret Service-National Threat Assessment Center (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002). The researchers investigated school associated violent acts and found that in a number of school attacks, the attackers described being victims of severe bullying behavior often to the point of torment. Others have found similar results (Fein, Vossekuil, Pollack, Borum, Modzeleski, and Reddy, 2002) that reiterate the fact that most school attackers had a difficult time coping with significant losses or personal failures, and most had considered or attempted suicide. Anderson and colleagues (2001) found that perpetrators of school violence were more likely than victims to have been bullied by their peers. The U.S Department of Justice (2002) evaluated school shootings and found that one

contributing factor to the violence was bullying. Additionally, the results from the National Crime Victimization Survey on students reports of bullying, the researchers found that victims of bullying (which relational aggression/bullying is a subtype) is a predictor of school violence (DeVoe & Chandler, 2005). The researchers also found that victims of bullying were more likely than their non-bullied peers to have experienced criminal victimization at school, fear of being attacked at school, avoidance of certain areas in school for fear of being attacked, carrying a weapon to school, and were engaged in physical fights at school. These experiences can have detrimental effects on school-aged children and adolescents, yet bullying and/or aggression should first be defined before explaining the effects of relational aggression.

### **Aggression Defined**

Aggression can be defined as an act that injures or agitates another individual. There are several forms of aggression: relational aggression (e.g. spreading rumors and social isolation), verbal aggression (e.g. arguing and name-calling), and physical aggression (e.g. physical attacks). Also, aggression is typically categorized as *hostile* or *instrumental* and can be perpetrated either overtly or covertly. Bushman and Anderson (2001) define aggression as follows: "*Hostile aggression is impulsive, angry behavior that is motivated by a desire to hurt someone. Instrumental aggression is premeditated, calculated behavior that is motivated by some other goal (e.g. obtain money, restore one's image, and restore justice) (p.273).*

Bullying is the most prominent form of aggression in schools (U.S Department of Justice, 2002). Olweus (1994) defined bullying as the repeated exposure to negative actions on the part of one or more students, coupled with an imbalance of power in the relationship. There are subtypes of bullying, or aggression, that can be classified as either direct (overt) or indirect (relational). Direct bullying entails physical and verbal incidents, while indirect bullying entails social incidents. Smokowski and Kopasz (2005) have identified four types of bullies. The physical bully uses pushing, hitting, or kicking to harm their victim; the verbal bully uses words to inflict harm or humiliate their victim; the reactive bully uses taunting then claims of self-

defense to harm their victim; and the relational bully uses social isolation and rejection to harm their victim (Smokowski & Kopasz, 2005).

Relational bullying is also known as relational aggression, and is interchangeable with indirect and social aggression. Archer and Coyne (2005) found that relational aggression is a slightly wider category than indirect aggression (including relational manipulation), and social aggression is a slightly wider category than relational aggression (including nonverbal hostile gestures). Hence, relational aggression includes rumor spreading, criticizing behind one's back, social isolation (ignoring peer), sarcasm, embarrassment in public, subtle-nonverbal expressions of disdain (mean-mugging/staring meanly), threats to withdraw friendship based on some request, and popularity hierarchy struggles (attempts at diminishing peers social status) (Archer & Coyne, 2005). Nicki Crick (1996) further defines relational aggression as "...*behaviors that harm others through damage (or threat of damage) to relationships or feelings of acceptance, friendship, or group inclusion*" (p. 77). It is important to understand that the harm inflicted through relational aggression can be inflicted overtly or covertly. Relational aggression can be further explained through the roles in a social group or clique; relational aggression is often perpetrated in close associations/friendships. The following are roles adapted from the *Mean Girls* professional seminar sponsored by Developmental Resources, Incorporated (as cited in Senn, p. 25, 2008):

1. *Queen*: the most powerful and popular in the social group;
2. *Sidekick*: the peer who supports the Queen;
3. *Wannabee*: the one who wants to be the most powerful and popular;
4. *Gossiper*: the one who seeks power by seeking information from others to improve their position;
5. *Floater*: the one who moves in and out of different social groups and does not seek power;
6. *Direct Bully*: the one who uses physical violence to gain power;

7. *Target*: the one the overt and relational aggression is targeted at, and might attempt to change in order to fit in; and
8. *Bystander*: the one who witnesses the overt and relational aggression, and is often afraid to go against the one in power.

These roles provide insight into the influences of relational aggression in friendships, social groups, or cliques. Some students take on dominant roles within the social group, while others take a more subservient role. Social identity theory suggests ... *"a substantial part of the self-concept is derived from our group memberships..., and we are motivated to evaluate these groups positively through social comparisons with other groups"* (Tajfel, 1978, as cited in Tarrant, p. 111, 2002). It is important to understand that overt and relational aggression can influence and sustain the different roles in social groups. Some adolescents may choose specific relationally aggressive behavior based on their roles. Some of these behaviors can be carried out via the internet or text as a means of humiliation. Recently, this form of aggression was described as the underlying factor for recent suicides of some adolescents.

Another form of aggression closely associated with relational aggression is cyberbullying. Cyberbullying is posting or sending text and/or images through the internet (or communication devices) that are intended to harm an individual's reputation and relationships in a covert manner. The popularity and availability of internet websites and cellular devices (i.e. social networking sites and blogs, chat rooms, e-mails, and text-enabled cellular phones) has enabled the exchange of information to a large populace of peers and others. Also, these communication devices tend to be unsupervised by parents or guardians, and other adult supervision. Moreover, cyberbullying has influenced confrontations in schools, and has bolstered direct bullying and violence in schools (Kowalski & Limber, 2007; Stover, 2006).

### **The Importance of Relational Aggression Research to School Social Work**

School social work is a specialized area of practice within the field of social work. This practice entails the application of unique knowledge and skills of social work within the school

system. According to the NASW Code of Ethics, the mission of the social work profession is to assist with... *“the basic human needs of all people, with particular attention to the needs and empowerment of people who are vulnerable, oppressed, and living in poverty”* ([www.naswdc.org/code.htm](http://www.naswdc.org/code.htm)). The school social worker's role is to address the issues of the *“whole student”* while taking into account all aspects of the student's life that influence him/her (e.g. academics, extracurricular activities, family, peers, community, etc.), and how these influences may affect the student's interactions and reactions in school and access to the school curriculum. The school social worker also advocates for students and provides referrals for social services.

A major issue in the schools is that the students' interactions and reactions in the school environment can sometimes turn aggressive or violent. When considering the influences and development of aggression and bullying, it is logical to suggest that there is a progression from relational aggression to verbal aggression to physical aggression (Cameron & Taggart, 2005). Additionally, relational aggression can undermine the school climate and interfere with the victims' functioning in the school environment.

Other concerns for school social workers are servicing ethnically diverse students in equitable manners. Research examined the prevalence of bullying and victimization by gender, grade level, and ethnicity (Flescher, Tortolero, & Markham, 2006). The researchers assessed these constructs by using an adapted version of the Espelage and Holt (2001) bullying/victimization measures. They found that physical and verbal types of bullying were more prevalent in males. Additionally, African Americans were more likely than Latino Americans to participate in bullying and victimization, and these experiences appear to increase in the 9<sup>th</sup> grade. Fitzpatrick, Dulin, and Piko (2007) examined direct bullying in a sample of African American students. The researchers developed a questionnaire that assessed demographics, family structure, exposure to violence, and family and peer relations; this questionnaire also assessed direct bullying behaviors in school. They found that this population,

in comparison to general school populations, displayed higher rates of bullying behavior. Additionally findings indicated that ecological factors such as age, family violence, and negative peer relations contribute to increased rates of bullying behavior.

In addition to servicing oppressed populations, school social workers also provide services to students experiencing mental health difficulties. Rachel Simmons (2002; 2004) described in her qualitative novels, *Odd Girl Out* and *Odd Girl Speaks Out*, about the troubles girls face due to relational aggression, as well as the internalizing problems that result (i.e. bulimia, insomnia, self-esteem issues, depression, and even suicide). Research indicates that relational victimization (being victimized by relational aggression) is a predictor of heightened cognitive and somatic anxiety, and relational aggression and victimization are associated with social aggression (Gros, Gros, & Simms, 2009). Research suggests that the experience of relational victimization is correlated with depression (Gomes, Davis, Baker, & Servonsky, 2009), and depression is correlated with other mental health issues. Additionally, suicide is a worry in the child and adolescent population due to the depression and anxiety experienced as a result of relational victimization. Suicide is the third leading cause of death for children, adolescents, and young adults age 10-24, and each week in the United States over 100 young people die as a result of suicide (<http://www.jasonfoundation.com/facts/>)

Another issue that school social workers assist students in dealing with is the effects of social status. Research indicates that the more popular you are the less you experience relational victimization. Young, Boe, and Nelson (2006) found that popular students have considerable social influence; challenging a student with considerable social influence can effect a student's position in the peer group. Rose and Swenson (2009) studied perceived-popular adolescents who used relational aggression and found that this use was a buffer against the repercussions of internalizing symptoms. Yet some become targets of relational victimization (because of a lack of "buffers" possibly) and the internalizing symptoms manifest in different, sometimes violent, ways.

Other factors related to relational aggression include substance abuse, adjustment difficulties, and delinquency (Crick, Casas, & Nelson, 2002). Additionally, studies have been conducted that examined the correlations between relational and overt aggression on truancy and academic achievement (Nishina, Juvonen, Witkow, & 2005; Cullingford & Morrison, 1997). These school problems must be addressed in a fashion that services the whole student. School social workers often provide services (in the form of interventions) to students experiencing attendance difficulties, academic difficulties, and psychosocial difficulties. School social workers can better serve students when they understand and can identify relational aggression. They can further assist when they understand the influences of relational aggression on social behavior, and how it relates to the student's well-being.

The above research provides insight into the importance of the assessment of ecological factors that influence relational aggression (gender, family, peer, and community). Understanding which risk factors are most influential to the development (and progression) of relational aggression is important for assessment, which can foster practical prevention and intervention methods for relational aggression in the school environment. Research states that prevention strategies should focus on developing the capacity to evaluate information that might indicate a school attack is imminent, and developing strategies to prevent these attacks (Fein, Vossekuil, Pollack, Borum, Modzeleski, & Reddy, 2002). In a report developed for the U. S. Department of Justice (2002), the researchers found that attackers often tell someone about their plans for targeted violence. Additionally, this report suggested that prevention measures for school aggression and violence entail young people having the opportunity to talk with accessible and caring adults (like school social workers). Hence, the assessment of relational aggression is essential for developing prevention and intervention strategies for differing forms of school aggression.

### **Problem Statement**

Measurements are important in order to assess client problems and goals, and evaluate practice (Fischer & Corcoran, 1994). A review of the literature reveals that there are insufficient relational aggression measures that were self-report and normalized on non-European American (diverse) populations. Currently, relational aggression research has utilized peer rating, peer nomination, parental rating, teacher rating scales, and different observational techniques to measure relational aggression. Peer ratings are the most popular method of measurement in relational aggression research. Self-report measures are limited in relational aggression research, lack reliability, and some self-report measures were normalized on college-aged students (Loudin, Loukas, & Robinson, 2003; Campbell, Sapochnik, & Muncer, 1997).

Crick et al. (as cited in McNeilly-Choque, Hart, Robinson, Nelson, & Olsen, 1996) found that self-report measures for relational aggression are poorly correlated with information obtained through other methods. Further, McNeilly, Hart, Robinson, Nelson, and Olsen (1996) found that correlations are low between teacher reports, peer reports, and observational ratings. Hence, it is important to continue to strive to increase the reliability of relational aggression measurements, including self-reports; it is also important to note that different methodologies may be more appropriate for certain age groups than others. The development of a self-report measure for relational aggression is essential for the advancement of research with diverse adolescents.

The purpose of this study is to develop and test a self-report measurement that assesses relational aggression from a school social work perspective. Additionally, this study attempts to provide an understanding of relational aggression in diverse adolescents in an alternative school setting and regular high school setting.

## CHAPTER 2

### LITERATURE REVIEW

#### **Theoretical Perspectives**

Conflict can be defined as the act of disagreement or opposition, and is handled differently according to the reinforcements received in one's environment. It is believed that children's first experiences with interpersonal conflict occur within the family, and more specifically, within sibling relationships (Perlman, Garfinkel, & Turrell, 2007). The childhood and adolescent years are when one learns how to resolve conflict, and how to go about these resolutions. Research suggests that aggression can be resolved through discussion, agreement, compromise, or concession, yet this resolution can escalate into aggression or violence when one or both parties attempt to force their position on one another (Winstok, 2007). It is believed that aggression is more common during adolescence (Elliott & Tolan, 1998), yet not all adolescents become aggressive.

Conflict is normal within adolescent group development, and the development of groups and/or cliques within the school environment is complex due to the unique nature of educational settings. Since bullying, school fights, and large scale aggressive acts are prominent in schools, more concern has been directed to child/adolescent conflict, and how it influences aggression in the school environment. Additionally, the explanation of aggression, how aggression is maintained, and the choice to use one type of aggression over another can be explained through differing theoretical perspectives. There are well-accepted theories that explain why some adolescents become aggressive and others do not (e.g. social learning theory, social information processing, theory, and ecological theory).

*Social Learning Theory.* One theory which explains aggression in children and adolescents is the social learning theory. This theory contends that behaviors are learned

through modeling; in order to imitate a model one must observe the model and the reinforcement received, retain the information gained by the model, have the ability to imitate the model, and (contingent on the reinforcements) perform the modeled behavior (Crain, p. 230, 1985). Albert Bandura's historical study of the "Bobo doll" examined the reinforcement of aggression, and this study has been the cornerstone for social learning theory of aggression (Bandura, 1965b, as cited in Crain, p. 231, 1985). In this study, four-year-old participants observed a film in which an adult male model hit a doll, yet the film had three different endings (i.e. aggression-rewarded, aggression-punished, and no-consequences). The participants were then allowed to play with the same doll. The results indicated that the participants who observed aggression being punished exhibited fewer aggressive imitations than those whose aggression was rewarded or received no consequences. Another historical study further reiterates the findings of Bandura's examination of aggression and social learning theory. Puleo (1978) examined the effects of social praise as reinforcement for playing in an aggressive manner. The results were consistent with the social learning theory in that the number of imitated aggressive responses increased in the participants based on the amount of praise given to the model for aggressive behaviors.

Other research has found that children often imitate their parents' behavior, but as they grow older, they tend to imitate different models from their social environment (i.e. peers and teachers) (Muuss, 1976). Another study (Letendre, 2007) used the social learning theory to examine the contributions of parental, environmental, and peer factors on the development of girls' aggression. With the premise that aggressive behavior is learned through modeling, reinforcement, and imitation, this article found that specific parental practices, such as failure to model non-aggressive interactions and the consistent use of harsh punishment for negative behaviors, are associated with the development of aggressive and anti-social behavior.

*Social Information Processing Theory.* Another theoretical perspective that is often used to explain child and adolescent aggression is social information processing (SIP). This theory is

important to aggression research because it emphasizes the importance of social interactions and their influences on relationships, and suggests that individuals process social cues in a way that influences their responses and behaviors in the social environment. SIP assumes that six steps are used when processing social information, and one refers back to past experiences and memory (or the database) while choosing and enacting a behavioral response. Crick and Dodge (1994) included the following steps: (1) encoding of internal and external cues, (2) interpretation of cues and mental representation of those cues, (3) clarification of goals, (4) response access or response construction, (5) response decision, and (6) behavioral enactment. These six steps from the reformulated model can be further explained by the following factors: (1) understanding social and interpersonal stimuli and interpret them; (2) causal attributions, intent attributions, and other interpretive processes; (3) the selection of goals or desired outcomes for the situations chosen; (4) access possible responses from memory, or construct new responses; (5) evaluate the accessed responses and select the most positively evaluated response; and (6) the behavioral response is enacted. These steps were reformulated from an earlier five-step model used in SIP for social competence in children (Dodge, 1986, as cited in Crick & Dodge, 1994). These five steps included the: (1) encoding process, (2) representation process, (3) response search process, (4) response decision, and (5) enactment process.

Empirical research has been conducted on the SIP model and its factors, and the findings suggest that these factors significantly predict children's aggressive behavior problems (Dodge, Laird, Lochman, & Zelli, 2002). Child and adolescent participants have been used to investigate SIP theory and the development and maintenance of relational and overt aggression. A study conducted by Crain, Finch, and Foster (2005) evaluated the relevance of the SIP model for understanding relational aggression in girls. SIP factors were examined in two separate studies to determine relational aggression predictors in girls. Study 1 examined whether SIP factors predicted peer-nominated relational aggression; the participants consisted

of 134 girls in grades fourth through sixth. The SIP variables examined were hostile intent attributions (step 2), the likelihood of choosing a relationally aggressive response, social goals, and outcomes. In study 1 the researchers found that peer reports of relationally aggressive behavior were unrelated to SIP factors. In study 2, the participants consisted of 125 girls in grades fourth and fifth. Study 2 also examined whether SIP variables predicted peer-nominated relational aggression and girls' likelihood of choosing a relationally aggressive response in response to an ambiguous relational provocation. The findings from both studies contradict previous results of studies on SIP variables, and suggest that the application of SIP theory to relational aggression does not apply to girls.

In contrast, other research suggests that the SIP theory is applicable for males and females. Crick and Dodge (1996) studied the social information processing patterns of three types of groups: reactive aggressive children, proactive aggressive children, and non-aggressive children. With the belief that SIP patterns were influential in the development and maintenance of reactive and proactive aggression, the researchers were interested in how the different groups processed hypothetical vignettes. The participants consisted of 624 third through sixth grade male and female students, and were assessed through teacher ratings of aggression and SIP measures (e.g. intent attribution instrument and response decision instrument). The intent attribution instrument consisted of six stories that each end with a provocation in which the intent is ambiguous. Participants answered two questions for each story, which assessed their attributions of the provocateur. The response decision instrument assessed participant outcome expectations and feelings of self-efficacy through evaluation of two types of outcomes for eight stimuli. The researchers found that the three subgroups of aggressive children processed social information in distinctive ways. For example, proactive aggressive children were likely to view aggression as an effective way of achieving social goals, and reactive aggressive children were more likely to attribute hostile intent to ambiguous situations than non-aggressive peers.

The intent attributions of relationally and physically aggressive children were evaluated in a study conducted by Crick, Grotpeter, and Bigbee (2002). Intent attributions (step 2) entail interpreting social cues to infer the motives of others. The researchers found that relationally and physically aggressive children exhibited hostile attributions to social cues. In addition, relationally aggressive children reported more distress to relational provocation while physically aggressive children reported more distress to instrumental provocations. Furthermore, relationally and physically aggressive children that exhibit hostile attribution biases and deficiencies in this SIP model are likely to engage in aggressive acts. Crick and Werner (1998) studied response decision processes (the 5th factor of the SIP model) in relationally and overtly aggressive children. The participants were presented with conflictual situations and results indicated that overtly aggressive girls and boys evaluated overtly aggressive responses to conflictual situations as positive. Similarly, relationally aggressive girls and boys evaluated relationally aggressive responses to conflictual situations as positive.

Ecological Theory. The final theory which is applicable to this research is the ecological theory. The ecological theory is one of the most accepted theories in the school social work field, and applicable to the examination of relational aggression in adolescent students. This theory is best described as the interaction and transaction between the student and their environment (Allen-Meares, Washington, & Welsh, p.75, 2000). Moreover, the ecological theory encompasses all the environmental systems that interact and affect the student (Clancy, 1995). Environmental conditions consist of an aggregate of external conditions from the micro, meso, and macro systems; these conditions can include family, peers, school, community, and the mass media.

Herrenkohl, et al. (2000) conducted a longitudinal study to explore ecological risk factors for youth violence, and to explore the effects of constructs that have been found to increase risk for other problem behaviors. The risk factors were individual, family, school, peer, and community influences. These factors were evaluated when the participants were 10, 14, 16, and 18 years

of age. The results indicated that at 10 years of age antisocial behavior and hyperactivity were strong indicators of violence at 14 and 16 years of age. Additionally, favorable parental attitudes towards violence significantly predicted violence by the age of 18. Another finding was that at age 10, 14, and 16, low academic performances, peer delinquency, and gang membership predicted violence at age 18. Another study examined adolescents that were labeled as relationally aggressive and/or violent, and then assessed for common ecological risk factors (Herrenkohl, et al., 2007). The researchers found that peer influences, and individual and family characteristics were the most influential risk factors for relational aggression and violence.

### **Empirical Data for Relational Aggression**

Relational aggression and overt aggression are often compared and contrasted with one another on different correlated variables. It is believed that significant and unique information can be obtained regarding overt aggression and school violence when relational aggression is considered (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002). The following relational aggression predictors are discussed within adolescent aggression literature: gender (Crick & Grotpeter, 1995; Crick et al., 2006; Ostrov, 2006); family factors (Nelson et al., 2006; Stauffacher and DeHart, 2006; Crick, Casas, & Mosher, 1997); peer relations (Crick & Grotpeter, 1995; Crick, 1996; Cullerton-Sen & Crick, 2005; Grotpeter & Crick, 1996; Werner & Crick, 2004); and community factors (Hawkins, et al., 1998; Aisenberg & Herrenkohl, 2008; Herrenkohl et al., 2000). These predictors provide insight into the development, causes, and effects of relational aggression in adolescents.

Gender. Research suggests that boys are more likely to exhibit physically aggressive behaviors, while girls are more likely to exhibit relationally aggressive behaviors (Crick & Grotpeter, 1995; Cullerton-Sen & Crick, 2005; Werner & Crick, 2004; Crick & Ladd, 1993; Crick & Grotpeter, 1995). Gender specifics suggest that relational and overt aggression begin in early childhood and become more prominent during adolescence (Crick, Ostrov, & Werner, 2006; Giles & Heyman, 2005; Ostrov, 2006). These relationally and overtly aggressive behaviors are

embedded through reinforcement of gender specific roles throughout teen and adult life (Conway, 2005; Crick & Ladd, 1993; Crick, 1996; Herrenkohl, et al., 2007).

Family Factors. Another factor in research that contributes to relational and overt aggression among adolescents is family functioning. Familial antecedents, such as parent and sibling relationships, are extremely influential to the development of relational aggression in adolescents (Maxwell & Maxwell, 2003; Solomon, Bradshaw, Wright, & Cheng, 2008). Casas and colleagues (2006) evaluated parental effects on relational and physical aggression in a preschool population. They found mothers' and fathers' authoritarian and permissive parenting styles were positively correlated to relationally aggressive behaviors in their children. Another study examined parenting styles as predictors of relational aggression in Puerto Rican and European American preschoolers (Brown, Arnold, Dobbs, & Doctoroff, 2007). The researchers assessed the effects of over-reactivity (harsh, authoritarian parenting), laxness (overly permissive parenting), positive parental affect (positive display of emotion), and negative parental affect (negative display of emotions) on relational aggression. The results indicated that positive parental affect predicted a reduction in relational aggression, and negative affect predicted an increase in relational aggression.

Nelson, Hart, Yang, Olsen, and Jen (2006) evaluated physically coercive and psychologically controlling parenting, and its effects on physical and relational aggression in male and female preschoolers. Results indicated that coercive and psychologically controlling parenting predicted aggression in the participants. More specifically, when mothers and fathers both displayed psychological control but not physical coercion, girls were found to be more physically and relationally aggressive. Yet, when mothers and fathers both displayed more physical coercion than psychological control, males were more likely to display physical aggression. These findings are consistent with prior research on maternal/parental psychological control and its unique association with early adolescent social and overt aggression (Loukas, Paulos, & Robinson, 2005).

The emotional and physical responses of parents are potential sources of influence on children's aggression. A study conducted by Werner, Senich, and Przepyszny (2006) examined the influence of mothers' affective and behavioral responses to hypothetical displays of relational and physical aggression in their preschool children. The results of this study revealed mothers' reported lower levels of negative affect and a smaller likelihood of intervening when asked to imagine their child engaging in relational aggression, in comparison to their child engaging in physical aggression. In short, the interactions and modeling that occur in parenting can predict relational aggression.

The interactions and modeling that occur in sibling relationships can also influence the display of relational aggression. Updegraff, Thayer, Whiteman, Denning, and McHale (2005) found correlations between relational aggression in adolescent sibling pairs, and the quality of sibling and parent relationships. The assessment of relational aggression in sibling and peer relationships during early childhood was examined by Ostrov, Crick, and Stauffacher, (2006). The findings suggest that older sibling's relational aggression predicted younger sibling's use of relational aggression towards peers. Another study conducted by Stauffacher and DeHart (2006) found that sibling relationships exhibited higher rates of relationally aggressive behaviors than peer relationships in early childhood groups. In summation, research suggests that family management practices and stability in residences predict the occurrence of aggression and violent behaviors in adolescents (Herrenkohl, Hill, Hawkins, Chung, & Nagin, 2006; Herrenkohl, Herrenkohl, & Egolf, 2003). This includes parent-child relationships as well as sibling relationships.

Peer Factors. The peer group is an important influence on adolescents. Recent research has suggested that in addition to familial functioning, peer relationships are influential in the display of relational aggression in children and adolescents (Gorman-Smith, Henry, & Tolan, 2004). The association with anti-social peers appears to be an important factor in the development of aggression and violent behavior in adolescents (Herenkohl, Kosterman,

Hawkins, Catalano, & Smith, 2001). In a study conducted by Mouttapa, Valente, Gallagher, Rohrbach, and Unger (2004), friends' participation in aggressive behaviors was positively associated with being a bully or an aggressive victim (a victim that retaliates with aggressive behavior). In another study, Neal (2009) found that relational aggression was influenced by peer context. This means *where* the relationally aggressive peer was located in their school social networks or popularity hierarchy. This research suggests that social status and/or popularity are associated with the display of relational aggression (Rose, Swenson, & Waller, 2004). In addition to peer relationships as a predictor of relational aggression and violence, community factors are also influential predictors.

Community Factors. Children and adolescents living in low-income and high crime communities are at increased risk for the exposure to violence (Aisenberg & Herrenkohl, 2008; Hawkins, et al., 1998). Exposure to violence has been shown to predict the display of relational and overt aggression and violence. Additional community factors that may predict child and adolescent aggression are the lack of neighborhood role models and low neighborhood attachment (Aisenberg & Herrenkohl, 2008; Herrenkohl et al., 2000). As mentioned in the previous section, family life can influence the display of relational aggression; further research indicates that family conflict can be a consequence of community violence exposure (Vincent, 2009).

Other empirical data that attempts to explain adolescent aggression was conducted by Tolan, Gorman-Smith, and Henry (2003). This longitudinal study empirically tested the developmental-ecology model. The researchers examined the ecological factors of parenting practices and peer deviancy, and integrated them with community structure characteristics and neighborhood social processes. The researchers found that adolescents and their guardians were more likely to perceive high levels of problems (e.g. high crime levels and poverty) and low levels of neighborliness than other urban poor communities. Additional findings suggested that positive parenting practices were negatively correlated with antisocial peer influences.

Another community factor that is important is the influence of the media (more specifically television) on the display of relational aggression. Coyne, Archer, and Eslea (2006) found that the adolescent participants in their study were exposed to nearly 10 times more indirect, relational, and social aggression on television than they are in school. Overall, the predictors of relational aggression and overt aggression/violence in children and adolescents are similar. Empirical research has revealed that gender, family, peer, and community factors predict aggression and violence in children and adolescents. The assessment of relational aggression is central to the study of aggression and violence research in adolescents.

### **The Assessment of Relational Aggression**

Some relational aggression assessments are a subscale of a larger measure, which typically includes subscales that assess overt aggression, prosocial behaviors, anti-social behaviors, gender differences, adjustment, and peer relations. Assessment of relational aggression is conducted through peer ratings and nominations, teacher ratings, parent ratings, and self-reports. Peer ratings and nominations are conducted by rating or nominating a peer that you feel displays specific relationally aggressive behaviors. Teacher ratings are conducted by rating a student on specific relationally aggressive behaviors; parent ratings are conducted in the same manner. Self-report measures of relational aggression are qualitative, quantitative, and mixed methods. Self-report measures for children and adolescents provide important sources of information about one's own emotions and perceptions (Hope et al, 1999 as cited in Junttila, Voeten, Kaukianen, & Vauras, 2006). Additional assessment techniques for relational aggression include observations and interviews have been used to assess relational aggression (Giles & Heyman, 2005; Shute, Owens, Slee, 2002; Stauffacher & DeHart, 2006; Ostov, 2006; Crick et al., 2006).

*Table 1* is a brief summary of relational aggression subscales and scales. This table reveals that the populations normalized for relational aggression measures are predominantly European American male and female students between the ages nine and twelve (Crick & Grotpeter,

1995; Crick, 1997), as well as college students. Relational aggression assessments typically reference two historical studies, Crick and Grotpeter (1995) and Crick (1996). These studies developed peer and teacher forms of relational aggression subscales. Additionally, there are notable relational aggression scales and subscales in the research with fair to good internal consistencies, yet four of these scales reported no alpha levels and none were normalized on Non-European American (diverse) populations.

Table 1. *Brief Summary of Relational Aggression (RA) Measures*

Measure	Authors	Populations	Reporter	Field of Study	Internal Consistencies
<i>Peer Nomination Instrument RA</i> subscale (5 items); measure also assessed overt aggression, prosocial behavior, & social adjustment	Crick & Grotpeter (1995)	4 <sup>th</sup> -6 <sup>th</sup> graders; male/female; 60% European American	Peer Report	Education	.73 (peer form)
<i>Children's Social Behavior Scale RA</i> Peer subscale (4 items)/RA Teacher subscale (7 items); measure also assessed overt aggression & prosocial behaviors	Crick (1996) ( <i>developed from above measure</i> )	3 <sup>rd</sup> -6 <sup>th</sup> graders; 71% European American	Peer & Teacher Report	Education	.83 (peer form)
<i>Preschool Social Behavior Scale-RA</i> Teacher subscale (8 items)/RA Peer subscale (7 items); measure also assessed overt aggression, prosocial behaviors, & depressed affect	Crick, Casas, & Mosher (1997) ( <i>developed from above measures</i> )	Preschoolers; 75% European American	Peer & Teacher Report	Education	.96 (teacher form) & .71 (peer form)

Table 1 continued

Relational aggression subscale (7 items); also assessed overt aggression (3 items)	Loudin, Loukas, & Robinson (2003)	19-25 year old college students; male/female; 65% European American	Self Report	Education	.69
Relational aggression assessment (5 items)	Van Schoiack Edstrom, Frey, & Beland (2002) ( <i>developed from Crick &amp; Grotpeter, 1995</i> )	6 <sup>th</sup> -8 <sup>th</sup> graders; participants were from schools that were 45-895 European American	Self Report	Education	Unreported
<i>The Relational Aggression Questionnaire</i> (6 vignettes)	Goldstein & Tisak (2004)	7 <sup>th</sup> & 8 <sup>th</sup> graders; 90% European American	Self Report	Psychology	Unreported
<i>Social Experiences Questionnaire</i> (6 vignettes)	Crick & Grotpeter (1996)	4 <sup>th</sup> -6 <sup>th</sup> graders; 54% European Americans	Self Report	Education	.85
<i>Perpetration of Relational Aggression Scale</i> (5 items)	Wilson (2004)	Middle and High School Students	Self Report	Education	Unreported
<i>Young Adult Behavior Scale</i> (14 items)	Crothers, Schreiber, Field, & Kolbert (2009)	Median age=19.5; 91.6% European American	Self Report	Unreported	Unreported
<i>Direct and Indirect Aggression Scales</i> (12 indirect items)	Bjorkquist, Lagerpetz, & Osterman, (1992)	Age groups: 8, 11, & 15	Self Report	Psychology	.78 to .96

The majority of relational aggression measures were developed from the education and psychology fields. To date, few relational aggression measure exist that are specific to populations that school social workers serve (e.g. students of color, students with emotional/behavioral difficulties, students from low socio-economic backgrounds, students in an alternative school setting, etcetera). Research suggests that reports of relationally aggressive

behaviors vary depending on the method of measurement and the reporter (Archer, 2004). In a study conducted by Heyman and Legare (2005), the researchers examined children's evaluation of sources of information about psychological traits. The researchers found that older children were more skeptical than younger children about self-report, and more aware that people might lie or distort the truth when reporting about psychological traits. Ladd and Kochenderfer-Ladd (2005) conducted a two-part study to examine multiple informant measures for children's peer victimization. The researchers found that younger (2nd grade and below) children's peer reports of relational adjustment of classmates were less reliable than self-reports. In the second study the results indicated that data from self, peer, teacher, and parent reports were consistently more reliable than any single informant measure. According to Crick (1996), teacher and peer reports of relational aggression are correlated.

Self-report measures for children and adolescents have been viewed as unreliable due to their cognitive levels (Junttila, Voeten, Kaukianen, & Vauras, 2006). Traditionally, peer and teacher reports of relational aggression are used more frequently in relational aggression research, which reiterates the need for additional research in the area of self-report measures for relational aggression. Clifton, Turkheimer, and Oltmanns (2005) found that information gained from self-report overlapped with peer report information. Research has recently indicated that the use of self-reports contribute important information about one's emotions and perceptions (Hope, et al., 1999). The development and validation of a self-report measure can contribute unique information beyond parent, peer, and observational report measures. Difficulties that may arise from peer ratings and nominations are over exaggeration of relational aggressive behaviors based on their relationship with the peer being rated for relationally aggressive behaviors; additionally, teacher and parent ratings may be biased as well.

### **Literature Review Summary**

The factors that influence relational aggression, and the tools used to measure relational aggression are equally important components of the assessment process. This

literature review has revealed that relational aggression, a precursor to overt aggression and violence (Cameron and Taggart, 2005), is prominent in US schools. Gender, familial antecedents, and peer and community factors are constructs that have been thoroughly examined in relational aggression research, and have been shown to predict relational aggression in children and adolescents. The assessment of relational aggression has typically been conducted in the education and psychology fields, with limited diversity among the participants. Assessing relational aggression in at-risk students provides a new and unique perspective to relational aggression research, and can provide insight into the influences of relational aggression on violence in schools from a diverse adolescent perspective.

### **Rationale for Hypotheses**

A descriptive and multivariate design was used to evaluate the relational aggression measure, as well as the levels of relational aggression through for the diverse adolescent participants. This design is most beneficial for this study because it will describe and measure the phenomena, relational aggression, through validation of the scale and the scale scores for the participant groups.

This study was guided by three hypotheses; these hypotheses were a means to develop and test a relational aggression measure with a diverse student population. Further, these hypotheses were developed as a means of examining the definitions (rumors, social isolation, criticizing behind someone's back, etc.) and predictors of relational aggression (gender, family, peers, and community constructs) in the study population. These hypotheses were formed into the following questions:

1. Will the relational aggression measure be valid and reliable for the Alternative School Group and the High School Group?
2. Will the Alternative School Group rate higher on the Relational Aggression scale than the High School Group?

3. How many reliable and interpretable components are there among the following 28 variables: ridicule someone you don't like, mean joke/in a group, repeat rumor, talked about/low popularity, ridicule you/retaliate, ridicule you/confront, friend ridiculed you/retaliate, ridiculed a friend when joking, avoid friend, posting a ridicule on website to retaliate, girls spread rumors more, girls ignore friends more, boys talk about their friends, whispering and looking/ridiculing you, talk with someone to retaliate against someone else, stare at person you don't like, ridicule someone covertly, someone stares/they don't like you, ridiculed someone covertly, adult ridiculed a friend when they weren't around, parent ridiculed a friend when they weren't around, sibling ridiculed a friend when they weren't around, friend ridiculed a friend when they weren't around, people in neighborhood ridiculed a friend when they weren't around, parent encouraged me to ridicule friend, friend treated me badly without notification, my friend and I ridiculed someone when they passed by, *and* if someone is dressed poorly/okay to ridicule?

## CHAPTER 3

### METHODS

Relational aggression research is essential for an understanding of the causes and effects of aggression and violence in schools. Relational aggression research with aggressive and at-risk adolescents is limited in the school social work field, as well as other fields. The researcher's goal is to gain a better understanding of the definition and predictors of relational aggression in an adolescent at-risk population in order to develop and evaluate a relational aggression measure.

#### **Setting**

School environments are typical settings where adolescent aggression research is conducted. The school district where this research was conducted is a small suburban town situated between two larger metropolitan cities in north-Texas. The population of this suburb is 32, 028; of these citizens, 51% were European American, 33% were African American, and 12% were Latin American. The median household income is \$60,140, and 5.5% of the city lives below the poverty line; approximately 90% of the city has a high school education or higher ([www.zipskinny.com](http://www.zipskinny.com)).

Within this north-Texas suburb, there are 15 schools with a total population of 8,132 students: 7 are elementary schools (pre-kindergarten-4<sup>th</sup> grade); 3 are intermediate schools (5<sup>th</sup> and 6<sup>th</sup> grades); 2 are middle schools (7<sup>th</sup> and 8<sup>th</sup> grades); 1 ninth grade center (9<sup>th</sup> grade only); 1 high school (10<sup>th</sup>-12<sup>th</sup> grades); and 1 alternative school (5<sup>th</sup>-12<sup>th</sup> grades). The school district population is 52% male, approximately 67% are African American, 21% are Latin American, 10% are European American, and less than 1% are Asian American.

Subjects for this study were selected from the following schools: ninth grade center (NGC), the high school (HS), the collegiate high school (COLL), and the district alternative

education program (DAEP). Students are assigned to the DAEP for violating the student code of conduct. Some of these violations include, but are not limited to, persistent misbehavior (including truancy, disruptive behavior, and insubordination), fighting, assault on a school employee, use/possess/sale drugs and/or alcohol, false threats, and sexual activity on school grounds.

### **Participants and Consent**

The participants were recruited through convenience sampling. Although convenience sampling was used, there is a benefit and need for using this population. The justification for using ninth grade center, high school, collegiate high school, and alternative school students for this study is that adolescent aggression is often studied in middle and secondary schools, and bullying and aggression is prominent in this age group. Additionally, overt aggression is prominent in the DAEP population, and relational aggression can be the precursor to overt aggression and violence in schools (Cameron and Taggart, 2005). The study population consisted of 191 ninth through twelfth grade students (95 males/96 females) ranging in ages from 14-19; 49 students were DAEP students. Out of the total population, 74% of the population was African American, 13% were Latin Americans, and 7% were European American; and 113 students received free or reduced lunch. For comparison purposes, the participants were grouped in either the Alternative School Group (DAEP students) or the High School Group (all other students). From the Alternative School Group, 11 students were in the 9<sup>th</sup> grade, 19 were in the 10<sup>th</sup> grade, 11 were in the 11<sup>th</sup> grade, and 8 were in the 12<sup>th</sup> grade. From High School Group, 94 students were in the 9<sup>th</sup> grade, 27 were in the 10<sup>th</sup> grade, 11 were in the 11<sup>th</sup> grade, and 10 were in the 12<sup>th</sup> grade.

Prior to implementation of this study, permission to conduct research in all four schools was requested and received from the Chief Operating Officer of the school district. The Alternative School Group consisted of students assigned to the DAEP from their home schools (the ninth grade center and high school). The High School Group consisted of students enrolled

in health classes. The health courses have approximately 30 students in either 9<sup>th</sup> grade (NGC & COLL) or 10<sup>th</sup> through 12<sup>th</sup> grade (HS & COLL).

Parental consent forms and assent forms were given to the participants two weeks prior to data collection. The consent form included a general description of the study including the purpose, the duration of their student's participation (30-50 minutes), the procedures for collecting the information, an explanation about the confidential nature of the study, the potential risks and benefits to the student, the compensation the student will receive for participation in the study, the rights and responsibilities of the student, and whom to contact for questions about the study. The assent letter that included a basic description of the study, and the student's right to participate or withdraw from the study (at any time). Those students who returned the parental consent and student assent forms participated in the study. The sensitivity of a measure, and the ability to detect any effects, is dependent on the sample size. This sample size for this study (N=191) was appropriate to achieve adequate power to show statistical significance of the measure. All the participants received compensation (a pizza party) for their participation.

### **Procedures**

The procedures for data collection differed for the two different participant groups. Procedures for data collection were the same for all students in the High School Group; during the health classes the High School Group was administered the questionnaire. The data collection procedures for the Alternative School Group took place during their lunch period. The participants were tested in groups ranging from three to thirty participants, and testing took place in different health classrooms in the NGC, HS, COLL, and in the counseling office in the DAEP. The instructions for the questionnaire were read aloud to all the participants due to the possible varying academic levels of the student participants. The instructions included a short passage that described the study, as well as explicit instructions to not report their names on any page of the questionnaire. All possible questions about the questionnaire were directed to

the researcher. The questionnaire consisted of statements of agreement or disagreement, ratings of behaviors, and responses to question. After the participants completed the questionnaire, they placed the form through a slit in the top of a sealed box (which further assured confidentiality and anonymity).

## **Materials**

The materials for this study consisted of four different measures, including the *Diverse Adolescent Relational Aggression Scale*. (The *Index of Family Relations* and the Relational Aggression subscale were used with permission. All these measures were put together in a single questionnaire for a total of 80 items. Information about each of these scales is provided below, and the rationales for using these scales are described below and throughout the latter half of this paper.

*Demographics Survey*. This measure was created specifically for the present study (see Appendix B). The purpose of this survey was to record student identifiers (i.e. age, grade, disciplinary history, etcetera), juvenile record, family structure, and parental aggression history. Some demographic items were reported in a yes/no and multiple choice format.

*Index of Family Relations (IFR)*. This measure is a 25-item scale designed to measure the magnitude of family relationship problems (Hudson, 1992) (see Appendix C). Each of these items were rated on a 7-point Likert scale ranging from 1 (none of the time) to 7 (all of the time). Cronbach's alpha was reported as .95.

*Relational Aggression Subscale*. This measure was designed for the purposes of a study conducted by Loudin, Loukas, and Robinson (2003) (see Appendix D). This measure consisted of a 7-item relational aggression subscale (and included a 3-item overt aggression subscale). All items were rated on a 5 item Likert scale ranging from not at all likely to very likely. The Cronbach's alpha for the relational aggression subscale was reported as .69.

*Development of Relational Aggression Scale*. The literature review in this study examined the extent and significance of the predictors of relational aggression, and established

the initial selection of items for this new relational aggression measure. More specifically, the literature review focused on theoretical and empirical research regarding ecological factors that predict relational aggression. The researcher developed a 28-item scale that addresses the definitions (relationally aggressive behaviors) and factors of relational aggression (see Appendix A). As previously defined, relational aggression is behaviors that harm others through threat to their relationships. Relational aggression can include rumor spreading and covert name-calling, social isolation (ignoring peer), popularity hierarchy struggles (attempts at diminishing peers social status), sarcasm, subtle-nonverbal expressions of disdain, and threats to withdraw friendship based on some request.

### **Evaluating the Validity and Reliability of the Measure**

Content and Face Validity. The items were developed through careful consideration of the literature and research in the area of relational aggression. The definitions of relational aggression and the correlating variables were considered when developing the items on the *Diverse Adolescent Relational Aggression Scale*. Additionally, there are four factors that attempt to tap the components of relational aggression: (1) relationally aggressive behaviors are gender specific; (2) family functioning (e.g. parent and sibling relationships) influence the development and display of relational aggression; (3) peer relationships influence the development and display of relational aggression; and (4) community factors (e.g. media, role models in the neighborhood, and crime in the neighborhood) influence the display of relational aggression. In addition to these factors, behavioral enactment of relational aggression (defined as retaliation, rumors, name calling, etc.), and certain steps of the social information processing theory (steps such as encoding and interpreting cues) also informed the development of this *Diverse Adolescent Relational Aggression Scale*.

After the measure is developed it will be shared with three school social work/school counselor professionals in order to obtain feedback on question content and/or word clarity. It is

assumed that this review will enhance the validity of the measure. Also, three students from the NGC and HS will be used to obtain feedback to enhance the readability of the measure.

Convergent Validity. The *Relational Aggression* subscale (Loudin, Loukas, & Robinson, 2003) is a valid measure that concurs with the *Diverse Adolescent Relational Aggression Scale*. This measure consists of 7-items that assess relational aggression. This measure was scored on a scale of 0 (not at all likely) to 4 (very likely); the higher summed score reflected more relational aggression. The relational aggression scale developed by Loudin, Loukas, & Robinson (2003) was developed for the study of relational aggression in college students. This study examined the contributions of social anxiety and empathy on relational aggression. The reliability of this subscale is .69 (Loudin, Loukas, & Robinson, 2003), and concurrent validity was fair and established through a peer report measure (Werner & Crick, 1999). The Loudin, Loukas, and Robinson (2003) measure was developed from the Werner and Crick (1999) measure by changing the wording of the items. Convergent validity will be established by comparing the scores from the *Diverse Adolescent Relational Aggression Scale* and the *Relational Aggression* subscale to the participants. This will determine if the participants score similarly on both related measures.

Construct Validity. An additional form of validity used to evaluate the measure will be construct validity. Construct validity will be established by administering a subscale of the *Index of Family Relations (IFR)* (Hudson, 1992) and comparing it to the *Diverse Adolescent Relational Aggression Scale*. This measure consists of 25-items that assess the extent, severity, or magnitude of problems that family members have in their relationships with one another. The reliability of this measure is .95 with good construct validity. This measure correlates with the *Diverse Adolescent Relational Aggression Scale* because family functioning is a construct from the literature review that has been shown to be a predictor of relational aggression. Theoretically, those with low levels of family functioning (or high levels of family problems) will have high levels of relational aggression.

Cronbach's Alpha. Another form of reliability that will be used to evaluate the measure is Cronbach's alpha. This form of reliability will be utilized to test the Likert-scale items in this questionnaire. The results should reveal an increase in Cronbach's alpha when the correlations between the items increase.

Split-half Reliability. In addition to validity, reliability will also be tested to evaluate the measure. This will be done by utilizing split-half reliability to establish internal consistency. The items on the measure will be divided into two sections and then compared. The results of this comparison should reveal that the responses, from both sections of the measure, are the same.

### **Statistical Procedures**

Factor analysis is the multivariate statistical procedure to be used to determine how well the constructs fit together and measure relational aggression, as well as to reduce the amount of variables in the data. The use of factor analysis can also be used to look for potential subscales within the relational aggression scale.

## CHAPTER 4

### RESULTS

The sample used for this research consisted of 191 ninth-twelfth graders from the alternative school (Alternative Group), and the Ninth Grade Center, High School, and Collegiate High School (High School Group). The Alternative School Group consisted of 49 students (one case from this group was dropped because the participant was the only 19 year-old), and the High School Group consisted of 142 students. In order to determine the similarities and differences between the Alternative School Group and the High School Group they were compared on age, gender, ethnicity, and free or reduced lunch.

#### **Description of Sample**

The age ranges for both groups were 14-18, and the mean age was 15. From the total population 36% were 14 years-old, 18% were 15 years-old, 25% were 16 years-old, 14% were 17 years-old, and 8% were 18 years-old. From the Alternative School Group 4% were 14 years old, 20% were 15 years-old, 35% were 16 years-old, 27% were 17 years-old, and 14% were 18 year-olds. The mean age from this group was 16 years old. From the High School Group 46% were 14 years-old, 17% were 15 years-old, 21% were 16 years-old, 9% were 17 years-old, and 6% were 18 year-olds. The mean age from this group was 15 years old.

There were a total of 95 males and 96 females. From these totals the Alternative School Group had 24 males and 25 females, and the High School Group had 71 males and females. The ethnicities represented in the total sample were 74% African American, 13% Latin American, 7% European American, 1% Asian American, and 5% were of dual ethnicity. From the Alternative School Group (N=49), 80% were African American, 12% were Latin American, 6% were of dual ethnicity, and 2% were European American. From the High School Group (N=142), 73% were African American, 13% were Latin American, 9% were European American, and 5% were of dual ethnicity. Additional demographic information collected was receipt of free

or reduced lunch. Since socio-economic status (SES) is difficult to assess with this population, receipt of free or reduced lunch was used as an indicator of low SES. Free and reduced lunch was received by 59% of the total population. Fifty-nine percent of the Alternative School Group and the High School Group received free or reduced lunch.

Chi-square analysis was conducted to determine if a statistically significant difference exists between the Alternative School Group and the High School Group on the demographic variables age, gender, ethnicity, and free or reduced lunch. Results revealed a statistically significant difference between the groups on the variable age,  $t(189)=5.84, p<.05$ . The difference was there were more 14 year-old participants in the High School Group as compared to the Alternative School Group. This disproportionate number of participants in the groups is evident (the High School Group having almost three times as many participants). There were no statistically significant differences between the groups on gender ( $t(189)=-.49, p>.05$ ), ethnicity ( $t(189)=.12, p>.05$ ), and free or reduced lunch ( $t(189)=-.00, p>.05$ ).

### **Evaluation of the Scale**

Observations revealed that 22 out of the 28 items on the scale correlated at least .3 with at least one other item, which suggests reasonable factorability (see Appendix G). The Kaiser-Meyer-Olkin measure of sampling adequacy was .73, above the suggested .6 value, and the Bartlett's test of sphericity was significant at the  $p=.00$  level. Additionally, the communalities were all above .4 which further corroborate that all 28 items share some common variance with other items. Based on these tests, factor analysis was suitable to evaluate the 28 item *Diverse Adolescent Relational Aggression Scale*.

Exploratory factor analysis (EFA) was used to examine the validity of the scale. The type of EFA extraction method determined to be the best fit for this research is Principle Component Analysis (PCA). Two parts of the output were examined to determine which factors to keep: the initial eigen values and the scree plot. Analysis revealed that components 1-8 met the Kaiser criteria of eigen values above 1, and the scree plot bends after component 8 so these were the only components kept. The first component explained 17% of the variance and

the second component explained 10% of the variance. The third and fourth components both explained 6% of the variance; and the fifth and sixth components both explained 5% of the variance. The seventh, eighth and ninth components all explained 4% of the variance. These 8 components, or subscales, explained 61% of the variance. Varimax rotation was attempted in order to determine the relationship between each observed variable and each component, or subscale. The results yielded factor loadings above the standard .4 for all 8 subscales; only 1 of the 28 items (item 10) had no factor loadings above .4 so it was dropped. Additionally, items 1, 5, and 14 had cross-loadings above .4 on two subscales.

Another factor analysis was run after dropping item 10 and results revealed that 9 components, or subscales, explained 62% of the variance; there were no cross-loadings of the items. The subscales of the Relational Aggression Scale were named based on the factor loadings; the highest (one or two) factor loadings for the subscales were used as the label. The subscales are as follows: Ridicule subscale, Covert Ridicule subscale, Ecological subscale, Rumor subscale, Encoding Cues subscale, Gender Perspectives subscale, Passive Ridicule subscale, Staring subscale, and Popularity subscale. The subscale (component) loading matrix for this final solution is represented in Table 2. The table details the factor loadings of all 27 items on the Relational Aggression Scale, and the communalities. The Ridicule subscale has 7 items, the Covert Ridicule subscale and the Ecological subscales each had 3 items, the Rumor subscale had 4 items, and the remaining five subscales had 2 items.

**Table 2** Subscale Loadings

	Loading	Communalities
<b>Subscale 1: Ridicule</b>		
• Ridicule someone you don't like (item #1)	.61	.56
• Mean joke in a group (item #2)	.52	.58
• Ridicule you/retaliate (item #5)	.64	.61

Table 2 continued

• Friend ridiculed you/retaliate (item #7)	.51	.56
• Ridiculed a friend when joking (item #8)	.68	.58
• Stare at a person you don't like (item #16)	.75	.66
• Someone dressed poorly/okay to ridicule (item #28)	.61	.53
<b>Subscale 2: Covert Ridicule</b>		
• Talk with someone to retaliate against another (item #15)	.40	.46
• Ridiculed someone covertly (item #19)	.77	.67
• My friend and I ridiculed someone as they passed by (item #27)	.67	.61
<b>Subscale 3: Ecological</b>		
• Adult ridiculed a friend when they weren't around (item #20)	.76	.70
• Parent ridiculed a friend when they weren't around (item #21)	.83	.75
• Sibling ridiculed a friend when they weren't around (item #22)	.61	.43
<b>Subscale 4: Rumor</b>		
• Repeat rumor (item #3)	.51	.62
• Friend ridiculed a friend when they weren't around (item #23)	-.51	.59
• People in neighborhood ridiculed a friend when they weren't around (item #24)	-.71	.58
• Parent encouraged me to ridicule friend (item #25)	.63	.59
<b>Subscale 5: Encoding Cues</b>		
• Ridicule you/confront (item #6)	.65	.57
• People whispering/staring, ridiculing you (item #14)	.65	.68
<b>Subscale 6: Gender Perspectives</b>		
• Girls spread rumors more (item #11)	.78	.72

Table 2 continued

• Girls ignore friends more (item #12)	.83	.72
<b>Subscale 7: Passive Ridicule</b>		
• Avoid a friend when mad at them (item #9)	.81	.77
• Ridicule someone covertly (item #17)	.45	.68
<b>Subscale 8: Staring</b>		
• Boys talk about their friends (item #13)	-.74	.70
• Someone stares/they don't like you (item #18)	.63	.61
<b>Subscale 9: Popularity</b>		
• Talked about/popularity low (item #4)	.75	.64
• Friend treated me badly without notification (item #26)	.54	.54

### Scoring the Measure

The *Diverse Adolescent Relational Aggression Scale* consisted of 27 items and was worded positively to describe relational aggression behaviors and influences, and were scaled in a four-point Likert format: (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. To score this measure the responses were calculated in two ways: (1) the sum of all the items were totaled for a score, and (2) the average of all the items were totaled for a score. The items were scored so that higher scores indicate more relational aggression.

The Relational Aggression Scale was scored using 191 cases. Missing data was coded as 99 and not counted in the computation of scores for the *Diverse Adolescent Relational Aggression Scale* and its subscales. Higher scores on this scale indicate higher levels of relational aggression. The highest possible score on the Relational Aggression Scale is 108 (27x4=108; 27 items and 4 indicating strongly agree with the stated use of relational aggression). The lowest score received on the measure was 27 and the highest score on the measure was 97; the mean score was 72.

There were 9 subscales developed out of the 27 item scale (see Table 2). These subscales were scored using 191 cases. The Ridicule subscale had a possible high score of 28. The lowest score calculated on the subscale was 7 and the highest score on the subscale was 28; the mean score was 18. The Covert Ridicule subscale had a possible high score of 12. The lowest score calculated on the subscale was 3 and the high score was 12; the mean was 8. The Ecological subscale had a possible high score of 12. The lowest score calculated was 3 and the highest score on the subscale was 12; the mean score was 9. The Rumor subscale had a possible high score of 16. The lowest score calculated on the subscale was 3 and the highest score calculated was 13; the mean score was 10. The Encoding Cues subscale had a possible high score of 8. The lowest score calculated on the subscale was 3 and the highest score calculated was 8; the mean score was 6. The Gender Perspectives subscale had a possible high score of 8. The lowest score calculated was 2 and the highest score calculated was 8; the mean score was 6. The Passive Ridicule subscale had a possible high score of 8. The lowest calculated score was 2 and the highest calculated score was 8; the mean score was 5. The Staring subscale had a possible high score of 8. The lowest score calculated was 3 and the highest calculated score was 8; the mean score was 5. The Popularity subscale had a possible score of 8. The lowest score calculated was 2 and the highest calculated score was 8; the mean score was 5.

The Alternative School Group and High School Group were compared on the Relational Aggression Scale and the 9 subscales. T-test statistic was conducted to determine if any statistically significant difference exists between the two groups based on the 27 item measure. The results indicate that the groups differ on their total score on the Relational Aggression Scale. The Alternative School Group's mean score on the scale was 73 and the High School Group's mean score was 71. This difference was not statistically significant,  $t(189)=1.28$ ,  $p>.05$ ).

T-tests were also conducted to determine if any statistically significant difference exists between the two groups based on the 9 subscales. The Alternative School Group's mean score

on the Ridicule subscale was 19 and the High School Group's mean score was 17. This difference was statistically significant at the .05 level,  $t(189)=2.55, p<.05$ . The mean scores for the Covert Ridicule subscale for the Alternative School Group and the High School Group was 14; there was no significant in scores for the groups,  $t(188)=.10, p>.05$ . The mean scores for the Ecological subscale for the Alternative School Group and High School Group were 8,  $t(188)=1.24, p>.05$ ; this result indicates that there was no statistically significant difference between the groups' scores on the subscale. On the Rumor subscale, the Alternative School Group and the High School Group both had a mean score of 10 and 9 respectively; these results indicate that there was no statistically difference in the scores between the groups,  $t(189)=1.82, p>.05$ .

For the remaining five subscales, the results were as follows. The Alternative School Group and the High School Group both had mean scores of 7 and 6 respectively on the Encoding subscale,  $t(189)=1.45, p>.05$ . The mean scores for the Gender Perspectives subscale for both groups was 6,  $t(189)=-1.82, p>.05$ . For the Passive Ridicule subscale, both groups had mean scores of 4,  $t(189)=-.34, p>.05$ . The Staring subscale for the Alternative School Group and the High School Group was 6 and 5 respectively; this was a statistically significant difference between the group,  $t(188)=1.98, p<.05$ . For the Popularity subscale, both groups had mean scores of 5,  $t(189)=-.93, p>.05$ .

In conclusion, independent t-test results indicate, as hypothesized, that the Alternative School Group scored higher on the Relational Aggression Scale than the High School Group, although these results were not statistically significant. The Alternative School Group was previously described as displaying physically, verbally, and relationally aggressive behaviors more than the High School Group. Since relational aggression is the precursor to verbal and physical aggression (Cameron and Taggart, 2005), the Alternative School Group had already reached the physically aggressive level and would be higher in relationally aggressive behaviors than the High School Group. The High School Group scored significantly higher on 2 out of the 9 subscales. On the Ridicule and Ecological subscales there were statistically significant

differences on the subscale scores between the Alternative School Group and the High School Group. Yet, there were no statistically significant difference between the group scores on the remaining 7 subscales.

### **Validity of Measure**

Face Validity. The validity of the Relational Aggression Scale was tested through face, convergent, and construct validity. Content validity was achieved by covering all facets of the construct relational aggression, such as definitions, theory, practice, and progression of aggression levels.

Face validity was achieved through feedback from two school counselors and one school social worker, and three students who read the Relational Aggression Scale. The school counselors that were selected worked in the schools that the participants attend. The other colleague was a school social worker from an alternative school in a neighboring suburb. All the colleagues have experience working with both types of students (students from the Alternative School Group and High School Group), and were asked to read and provide feedback on the Relational Aggression Scale. The only feedback provided was to place similar items on the same page and not let the other measures overlap on the same page. This feedback was applied prior to the collection of data.

Additional face validity was achieved by having three students read the entire measure for clarity and understanding. These three students attended the alternative school within the past calendar year, and they were currently attending the high school; hence, they were familiar with both school environments and were aware of what the questions were pertaining to. All three students read the entire questionnaire and stated that they understood the questions and what was being asked.

Convergent Validity. Descriptive statistics and a t-test were run to calculate the participants' ratings on the Relational Aggression Scale and on the Loudin, Loukas, and Robinson (2003) relational aggression subscale, as well as determine if any differences exist between the two groups. Findings indicate that the *Diverse Adolescent Relational Aggression*

*Scale* and the Loudin, Loukas, and Robinson (2003) relational aggression subscale are correlated. Additional findings indicate that the mean scores for both scales were higher for the Alternative School Group than the High School Group. These results indicate that both scales measure the construct relational aggression. The mean score for entire for the entire population was 15 (with a possible high score of 35).

Construct Validity. To achieve construct validity the *Index of Family Relations (IFR)* (Hudson, 1992) was administered and compared with the results from the *Diverse Adolescent Relational Aggression Scale*. The IFR consists of 25-items that assess the extent, severity, or magnitude of problems that family members have in their relationships with one another. This measure correlates with the *Diverse Adolescent Relational Aggression Scale* because family functioning (or severity of family problems) is a construct from the literature review that has been shown to be a predictor of relational aggression. Theoretically, those with low levels of family functioning (or high levels of family problems) will have high levels of relational aggression. The IFR is scored by summing the scores, subtracting the number of completed items, multiplying the sum by 100, and dividing this sum by the number of completed items multiplied by 6. The mean score for the entire population, and the mean scores for both groups, were used to determine the scores on the IFR. The mean score on the IFR for the entire population was 28, the Alternative School Group was 35, and the High School Group was 26.

In summary, after validity tests the statistical results indicate that the Relational Aggression Scale is high in validity. Face validity was achieved through feedback from colleagues and students about the scale. Concurrent and convergent validity was achieved through comparing the *Diverse Adolescent Relational Aggression Scale* and the Loudin, Loukas, Robinson (2003) relational aggression subscale; the high score and mean score for the *Diverse Adolescent Relational Aggression Scale* was 97 and 71 respectively, and the high score for the Loudin, Loukas, Robinson (2003) subscale was 35 and the mean score was 15. The Pearson's correlation coefficient was .43, and significant at the .01 level. Yet, this is a low correlation; this low correlation could be due to the use of the IFR.

These results indicate that the *Diverse Adolescent Relational Aggression Scale* and the Loudin, Loukas, and Robinson (2003) subscale are correlated ( $r=.43$ ,  $p<.01$ ), albeit a low correlation, and both scales measure the construct relational aggression. Also, the groups were compared to determine if any statistically significant difference exists between their means on the *Diverse Adolescent Relational Aggression Scale* and the Loudin, Loukas, Robinson (2003) subscale. Results revealed that the groups showed no difference on the *Diverse Adolescent Relational Aggression Scale* ( $t(189)=1.28$ ,  $p>.05$ ), but the groups did show differences in their mean scores for the Loudin, Loukas, Robinson (2003) subscale ( $t(189)=4.57$ ,  $p<.05$ ).

Construct validity was achieved through correlations and t-tests. Pearson's correlation coefficient results revealed that the *Diverse Adolescent Relational Aggression Scale* and the IFR are correlated ( $r=.25$ ,  $p<.01$ ), albeit a low correlation. The Alternative School Group had a higher score on the IFR than the High School Group; this was a statistically significant difference between the group scores,  $t(189)= 2.94$ ,  $p<.05$ . These results indicate that the Alternative School Group has more severe family problems than the High School Group, and their scores are higher than the total population ( $n=191$ ). Hence, the scores on the IFR and the *Diverse Adolescent Relational Aggression Scale* were higher for the Alternative School Group than the High School Group, indicating that the higher the relational aggression rates the more severe the family problems.

### **Reliability of Measure**

The internal consistency for the entire 27 item *Diverse Adolescent Relational Aggression Scale* was examined using Cronbach's Alpha and Split-half reliability. The Cronbach's Alpha was .78, and the reliability for the top-half (14 items) was .70 and the reliability for the bottom-half (13 items) was .65. Internal consistency for each subscale was examined using Cronbach's alpha. The alphas were moderate to low for all 9 components: .77 for Ridicule (7 items), .54 for Covert Ridicule (3 items), .68 for Ecological (3 items), -.03 for Rumor (4 items), .44 for Encoding Cues (2 items), .60 for Gender Perspectives (2 items), .43 for Passive Ridicule (2 items), -.21 for Staring (2 items) and .21 for Popularity (2 items). These

results indicate that the *Diverse Adolescent Relational Aggression Scale* was reliable, yet there were only three subscales that exhibited sufficient reliability (the Ridicule subscale, the Ecological subscale, and the Gender Perspectives subscale). Yet, these three subscales were more reliable for the High School Group than the Alternative School Group.

Separate reliability tests were run for the Alternative School Group and the High School Group. Cronbach's alpha on the *Diverse Adolescent Relational Aggression Scale* for the Alternative School Group was .74 and for the High School Group it was .79. Further, split-half reliability for the Alternative School group was .69 for the top-half of the scale (14 items) and .57 for the bottom-half of the scale (13 items); the split-half reliability for the High School Group was .71 for the top-half of the scale (14 items) and .68 for the bottom-half of the scale (13 items). These results indicate that the *Diverse Adolescent Relational Aggression Scale* was more reliable for the High School Group than the Alternative School Group.

The group's alpha levels for the Alternative School Group and the High School Group for the 9 subscales are as follows: the Ridicule subscale was .65 for the Alternative School Group and .79 for the High School Group, the Covert Ridicule subscale revealed results of .52 and .55 respectively; the Ecological subscale revealed results of .47 and .73 respectively; the Rumor subscale revealed results of -.57 and .06 respectively; the Encoding Cues subscale revealed results of .32 and .47 respectively; the Gender Perspectives subscale revealed results of .49 and .64 respectively; the Passive Ridicule subscale revealed results of .49 and .42 respectively; the Staring subscale revealed results of -.04 and -.35 respectively; and the Popularity subscale revealed results of .18 and .24 respectively.

Additionally, Cronbach's alpha was conducted to determine if the scale was reliable for both males and females. Results indicate that the *Diverse Adolescent Relational Aggression Scale* was reliable for both males and females with an alpha of .79 for both genders. In the Alternative School Group, the alpha was .76 for males and .74 for females; and in the High School Group, the alpha was .80 for both groups.

The mean scores for the *Diverse Adolescent Relational Aggression Scale* for males and females was 71 and 72 respectively; this difference was not statistically significant ( $t(189)=-.76$ ,  $p>.05$ ). Further, the mean scores for males and females in the Alternative School Group were 71 and 75 respectively ( $t(47)=-1.27$ ,  $p>.05$ ), and 71 for both males and females in the High School Group ( $t(140)=.00$ ,  $p>.05$ ); these results were not statistically significant. Additionally, the *Diverse Adolescent Relational Aggression Scale* appears to be more reliable for 9<sup>th</sup> graders than any other grade ( $\alpha=.83$ ).

The measure was also more reliable for the Alternative School Groups' 9<sup>th</sup> graders ( $\alpha=.86$ ) and the High School Groups' 9<sup>th</sup> graders ( $\alpha=.82$ ) than any other grades. These reliability results may be influenced by the number of ninth graders in the total population. Other reliability results indicate that scale was reliable for ethnically diverse adolescents such as African Americans ( $\alpha=.75$ ), European Americans ( $\alpha=.66$ ), and Latin Americans ( $\alpha=.70$ ).

In summary, the alpha for the *Diverse Adolescent Relational Aggression Scale* was significant for the entire population, and for the Alternative School Group and High School Group. Additionally, the alpha for the *Diverse Adolescent Relational Aggression Scale* was more significant for the High School Group than the Alternative School Group. The Cronbach's alpha results also indicated that the 9 subscales were, overall, more reliable for the High School Group than the Alternative School Group. Additionally, the *Diverse Adolescent Relational Aggression Scale* is reliable for both genders in both groups. These findings could be a result of the High School Group being less overtly aggressive than the Alternative School Group (and vice versa). In other words, the High School Group might use more relationally aggressive behaviors than the Alternative School Group.

## CHAPTER 5

### DISCUSSION

One aim of the current study was to develop and validate the *Diverse Adolescent Relational Aggression Scale*. The second aim of the study was to determine if relational aggression was higher in the Alternative School Group than in the High School Group. These objectives will help achieve the goal of the development of a unique measure with which to assess the use of relational aggression in a diverse adolescent population. It should be apparent that the need for valid assessment of relational aggression is imperative in order to further the research in this area.

#### **Psychometric Properties of the Scale**

The results of the present study indicate that the *Diverse Adolescent Relational Aggression Scale* has acceptable face, concurrent, construct, and convergent validity. This scale was reviewed by colleagues and students to verify that it measures relational aggression and is understood by the intended population. Additionally, the *Diverse Adolescent Relational Aggression Scale* correlates with measures that it should correlate with. For example, the *Diverse Adolescent Relational Aggression Scale* was compared to the Loudin, Loukas, and Robinson (2003) relational aggression subscale, they showed a fair correlation. Additionally, when the mean scores of the scales were compared for the groups, the Alternative School Group mean scores were higher for both measures, yet these differences were only significant for the Loudin, Loukas, and Robinson (2003) relational aggression subscale.

Cronbach's alphas at about .90 are considered excellent, alphas around .80 to .89 are considered good, and alphas around .70 to .79 are considered acceptable (Rubin & Babbie, 2005, p186). The *Diverse Adolescent Relational Aggression Scale* had a Cronbach's alpha of

.78, and split-half reliability for the top-half of the scale (14 items) was .70 and the bottom-half of the scale (13 items) was .65. The scale was more reliable for the High School Group than the Alternative School Group, yet the Alternative School Group had a higher mean score (73) than the High School Group (71) (this difference was not significant,  $t(189)=1.28$ ,  $p>.05$ ). Additional information also revealed that when students who had never attended the Alternative school ( $N=122$ ) were compared with students who had attended the Alternative school in the past or present school years ( $N=68$ ), there was a significant difference in the mean scores. The students who had ever attended the alternative school had a means score on the *Diverse Adolescent Relational Aggression Scale* of 74, those students who never attended the alternative school had a 71; this difference was significant ( $t(188)=2.24$ ,  $p<.05$ ). This significant difference in the mean scores between the groups might be explained by understanding the process of aggression types. It is believed that there is a progression from relational, to verbal, to physical aggression (Cameron & Taggart, 2005). Those students that have never attended the Alternative School may choose to use relational aggression, whereas the Alternative School Group has typically progressed to verbal and physical aggression.

### **Relational Aggression Assessment**

The assessment of relational aggression in the study population reveals a mean difference in the computed scores of the group exists. Although there was a difference in the groups, the Alternative School Group scoring higher than the High School Group, this difference was not significant. Therefore, this measure may be more beneficial in measuring relational aggression in populations that have not yet reached the verbal and/or physical aggression level; the Alternative School Group is a group that sometimes displays verbal and physical aggression as evidenced through their assignment in the alternative school. Hence, these results indicate that the *Diverse Adolescent Relational Aggression Scale* is a valid and reliable measure for students in an alternative school setting as well as students in a regular high school setting.

This study is unique in that it developed and validated a scale to assess relational aggression in a predominantly African American population (74%). The results from this study

indicated that the measure was more reliable for African American participants than Latino American and European American students. Additionally, the scale (and subscales) revealed higher reliability for diverse adolescents than their European American counterparts.

This is a preliminary study that will inform further research for the *Diverse Adolescent Relational Aggression Scale*. Research on the development of relational aggression measures is a growing area. One study conducted by Crothers, Schreiber, Field, and Kolbert (2009) examined the development and measurement of the Young Adult Social Behavior Scale (YASB) in order to assess relational aggression in adolescence and young adulthood. This self-report measure was analyzed through confirmatory factor analysis and results indicated that the YASB is a useful tool for assessing older adolescents' and young adults' use of social and relational aggression. Another article by Archer and Coyne (2005) described the multiple assessment techniques for relational aggression; these methods include observations, peer ratings, peer nominations, teacher ratings, self-reports, and other qualitative methods (focus groups and interviews).

### **Limitations of the Present Study**

Before making the assumption that the *Diverse Adolescent Relational Aggression Scale* is suitable for use in practice and research, certain limitations of the study should be addressed. As previously mentioned in Chapter 2, self-report measures have noted limitations as accurate indicators of relational aggression in children and adolescents (Junttila, Voeten, Kaukianen, & Vauras, 2006). The *Diverse Adolescent Relational Aggression Scale* is a self-report measure and was validated using only self-report measures. Table 2 provides a brief description of the types of measures in relational aggression research, and few are self-report. Research on relational aggression assessment has typically utilized peer, teacher, and parent ratings for relational aggression assessment. Further validation of the *Diverse Adolescent Relational Aggression Scale* will need to utilize these methods.

Sampling Limitations. An additional limitation of this study is sampling; convenience sampling was the sampling technique used in this study. The problem with convenience

sampling is that the population may not be a representative sample and generalizability is limited. Additionally, this form of sampling can create high biases and favor certain outcomes. A random sample of the available schools would improve the reliability and validity of the *Diverse Adolescent Relational Aggression Scale*. Additionally, this study was conducted with 14-18 year olds, yet there were more 14 year-old participants than any other age group. Future research should include more heterogeneous samples to make this scale more generalizable.

Statistical Limitations. Exploratory factor analysis was used in this study as a preliminary statistical analysis to validate the *Diverse Adolescent Relational Aggression Scale*; this form of analysis identifies the underlying factor structure. Although the factor structure has been identified through varimax rotation, confirmatory factor analysis should be the next step to further this research. Confirmatory factor analysis can be used to further verify the factor structure of the 27 item scale (and subscales).

Validity and Reliability Limitations. The *Diverse Adolescent Relational Aggression Scale* is a valid and reliable measure for the construct relational aggression, yet the validity and reliability of the measure could be improved. The use of another measure that is not as lengthy might be more beneficial for the validity of the *Diverse Adolescent Relational Aggression Scale*. A possible measure could be the Kansas Family Life Satisfaction Scale (KFLS)-Adolescent Version (Schumm, Jurich, & Bollman (1986). The KFLS is a 4-item scale that measures satisfaction with family life. This measure was normalized on adolescents, whereas the IFR was normalized on college-aged students and non-students. The population for this study was more homogeneous than heterogeneous for the demographic, age (more 14 year-olds than any other age group).

The convergent validity might be improved through the use of another relational aggression measure (opposed to the Loudin, Loukas, & Robinson (2003) subscale). The subscale used to establish convergent validity was normalized on the college student population (ages 19-25). This was thought to be a comparable measure since it was developed from a measure that was normalized on children and adolescents (Crick & Grotpeter, 1995).

Unfortunately, the participants of this study were primarily 14 year olds (a population unlike the population used for the comparable relational aggression measure). A possible scale could be the *Direct and Indirect Aggression Scales* (Bjorkquist, Lagerpetz, & Osterman, 1992). This scale was normalized on an 8 year-old group, an 11 year-old group, and a 15 year-old group.

Validity could be further improved through the use of predictive validity. Predictive validity can be achieved by including questions designed to measure physical aggression (*Direct and Indirect Aggression Scales*), since relational aggression is a precursor to physical aggression (Cameron and Taggart, 2005). The validation of a relational aggression scale should be a multi-step process that includes further research on the behavioral criteria that predicts relational aggression. Validity could also be improved through the use of discriminant validity. This could be done by adding items, or a complete scale, that will measure other constructs that should not correlate with the construct relational aggression (e.g. questions that measure social desirability responding).

Another limitation of this study is the reliability of the *Diverse Adolescent Relational Aggression Scale*; the scale has low primary loadings for the 9 subscales. Only three of the nine subscales had alphas above .60. Each of the subscales could possibly be strengthened through rewriting items with lower primary loadings (see Table 2). Another way to improve the reliability of the *Diverse Adolescent Relational Aggression Scale*, and its subscales, is through test-retest reliability. Test-retest reliability can indicate reliability of the *Diverse Adolescent Relational Aggression Scale* through stability of the scores between Time 1 and Time 2. This was difficult to achieve given the parameters of data collection in the schools.

## **Implications**

Research Implications. The findings from this study indicate that the *Diverse Adolescent Relational Aggression Scale* is a viable and reliable instrument for the study population, yet further studies are needed to extend the initial findings. Additional research on the measure can include the use of a different statistical analysis and statistical analysis package. With the use of a different statistical analysis, more information about the theory (that informs relational

aggression in schools) can be determined through confirmatory factor analysis and structural equation modeling. Additionally, this measure can be used to study the influence of relational aggression on physical aggression in alternative school populations and regular high school populations. An experimental research implication that is beneficial for the extension of these initial findings is the development and evaluation of a treatment intervention/prevention program for relationally aggressive students.

*Practice Implications.* The *Diverse Adolescent Relational Aggression Scale* is a valid instrument with which to measure relational aggression in a diverse adolescent population. Furthermore, this measure can be used to assess the presence of relationally aggressive behaviors in diverse adolescent populations, as well as to assess relationally aggressive students to better service their needs through counseling (individual and group) and/or peer-mentoring programs that deal with the ever-growing problems associated with relational aggression.

*Further Scale Development.* As previously stated, the use of different measures to establish convergent and construct validity is needed for the further validation of the *Diverse Adolescent Relational Aggression Scale*. The measures used in this study did not fit the study population, possible because the majority of the participants were 14 years-old and the scales used for validation were normalized on older participants. Another issue to deal with for the further development of the *Diverse Adolescent Relational Aggression Scale* is to add items that not only address relational aggression, but also items that address relational victimization. The inclusion of items that address relational victimization in this scale will help to better understand why a child might display relational aggression (as a form of retaliation). Storch and Masia-Warner (2004) define relational victimization as harming others through manipulation, spreading rumors to damage interpersonal relationships, or excluding a peer from social interactions.

## **Conclusions**

In conclusion, recognizing the developmental trends of relational aggression is an important aspect of research in this area. Relational aggression causes harm through rumor

spreading, criticizing behind one's back, social isolation (ignoring peer), sarcasm, embarrassment in public, subtle-nonverbal expressions of disdain (mean-mugging/staring meanly), threats to withdraw friendship based on some request, and popularity hierarchy struggles (attempts at diminishing peers social status) (Archer & Coyne, 2005). It is logical to suggest that there is a progression from relational, to verbal, to physical aggression. Relational aggression is considered as harmful and damaging to its victims as verbal and physical aggression.

Relational aggression can lead to adjustment difficulties, self-esteem issues, depression, suicide, substance abuse, delinquency, and truancy (Simmons, 2002, 2004; Crick, Casas, & Nelson, 2002; Nishina, Juvonen, & Witkow, 2005; Cullingford & Morrison, 1997). It would benefit researchers and practitioners to find ways to identify and treat people who experience relational aggression; the *Diverse Adolescent Relational Aggression Scale* is designed to do just this through the assessment of relational aggression.

APPENDIX A

DIVERSE ADOLESCENT RELATIONAL AGGRESSION SCALE

**Think about your interactions and relationships with your peers, family and community. In your interactions with your peers, family and community, do you agree with the following:**

1. It is okay to talk about someone you don't like.
  - a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
2. I have told a "mean joke" about someone in front of a group.
  - a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
3. It is okay to repeat a rumor that you've heard.
  - a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
4. When someone is talked about badly, their popularity might decrease.
  - a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
5. When someone is talked about badly, it is okay for them to "get back" at that person who was talking about them.
  - a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
6. When you hear that a peer/friend has been talking negatively about you, you should confront them.
  - a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
7. When you hear that a peer/friend has been talking negatively about you, it is okay to respond by talking negatively about them.
  - a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
8. It is okay to talk about a friend if you are just joking.
  - a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
9. It is okay to avoid your friend if you're mad at them.
  - a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
10. It is okay to post on your website something negative about a peer that made you mad.

- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
11. Girls spread rumors more than boys.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
12. Girls will ignore a friend more than boys.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
13. Boys talk about their friends.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
14. When people are whispering and looking in your direction they are probably talking about you.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
15. I have talked with a friend of someone I did not like in order to make the person I did not like mad.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
16. It is okay to stare at (mean-mug) someone you do not like.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
17. It is okay to talk about someone behind their back.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
18. If someone stares at you for a while...they probably do not like you.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
19. I have talked negatively about someone when they were not around.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
20. I have heard an adult talking negatively about their friend when they were not around.
- a. Strongly Agree

- b. Agree
  - c. Disagree
  - d. Strongly Disagree
21. I have heard my parent talking negatively about their friend when they were not around.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
22. I have heard my sibling talking negatively about their friend when they were not around.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
23. I have heard a friend talk negatively about another friend when they were not around.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
24. I have heard people in my neighborhood talk about someone behind their back.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
25. My parent has encouraged me to talk about a friend.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
26. My friend has treated me badly without telling me what I did.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
27. Just for fun, my friend and I have talked about someone when they walked by.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree
28. When someone is dressed poorly, it is okay to talk about them.
- a. Strongly Agree
  - b. Agree
  - c. Disagree
  - d. Strongly Disagree

APPENDIX B  
DEMOGRAPHIC QUESTIONNAIRE

**Write and/or circle the answer that applies to you.**

Grade \_\_\_\_\_ Do you receive SPECIAL EDUCATION services? Yes \_\_\_\_\_ No \_\_\_\_\_

(Are you supposed to be in another grade? Yes \_ No \_\_\_\_\_; if yes, what grade? \_\_\_\_\_)

Age \_\_\_\_\_

Race/Ethnicity \_\_\_\_\_

Check one: Male \_\_\_\_\_ Female \_\_\_\_\_

1. Do you receive free or reduced lunch?
  - a. Yes
  - b. No
2. Who do you live with?
3. What type of discipline is used in your home?
  - a. Grounding/Removal of privileges
  - b. Spanking/Hitting
  - c. Yelling
  - d. None
4. Have you **ever** been suspended (in-school or out of school) this past school year? Yes / No
  - a. How many times within the past year? 1 2 3 4 5 or more
5. Have you **ever** been placed in DAEP (the alternative school) this past school year? Yes / No
  - a. How many times? 1 2 3 or more
6. Do you feel safe at your school?
  - a. Yes
  - b. No
  - c. Sometimes
7. Have you ever been arrested? Yes / No
8. Have you ever received a ticket for fighting in school? Yes / No
9. Have you ever received a ticket for fighting in the community? Yes / No
10. I have seen one of my parents engage in overt aggression (arguing, fighting, threatening harm to someone, etcetera). Yes / No
11. Have either one of your parents ever been arrested? Yes / No
12. Have either one of your parents been incarcerated (in jail for a while)? Yes / No
13. In my neighborhood, I know people who have been arrested? Yes / No

APPENDIX C  
INDEX OF FAMILY RELATIONS

**These items are designed to measure the way you feel about your family as a whole.**

- |                         |                            |
|-------------------------|----------------------------|
| 1= None of the time     | 5= A good part of the time |
| 2= Very rarely          | 6= Most of the time        |
| 3= A little of the time | 7= All of the time         |
| 4= Some of the time     |                            |

1. \_\_\_ The members of my family really care about each other.
2. \_\_\_ I think my family is terrific.
3. \_\_\_ My family gets on my nerves.
4. \_\_\_ I really enjoy my family.
5. \_\_\_ I can really depend on my family.
6. \_\_\_ I really do not care to be around my family.
7. \_\_\_ I wish I was not a part of this family.
8. \_\_\_ I get along well with my family.
9. \_\_\_ Members of my family argue too much.
10. \_\_\_ There is no sense of closeness in my family.
11. \_\_\_ I feel like a stranger in my family.
12. \_\_\_ My family does not understand me.
13. \_\_\_ There is too much hatred in my family.
14. \_\_\_ Members of my family are really good to one another.
15. \_\_\_ My family is well respected by those who know us.
16. \_\_\_ There seems to be a lot of friction in my family.
17. \_\_\_ There is a lot of love in my family.
18. \_\_\_ Members of my family get along well together.
19. \_\_\_ Life in my family is generally unpleasant.
20. \_\_\_ My family is a great joy to me.
21. \_\_\_ I feel proud of my family.
22. \_\_\_ Other families seem to get along better than ours.
23. \_\_\_ My family is a real source of comfort to me.
24. \_\_\_ I feel left out of my family.
25. \_\_\_ My family is an unhappy one.

APPENDIX D

LOUDIN, LOUKAS, & ROBINSON RELATIONAL AGGRESSION SUBSCALE

**Think about your interpersonal relationships and your interactions with your peers. A peer can be someone who is a good friend, a classmate, an acquaintance or a dating partner. In your interactions with your peers, how likely are you to do the following:**

1. When angry or mad at a peer how likely are you to give him/her the "silent treatment?"
  - a. Not at all likely
  - b. Not very likely
  - c. A little likely
  - d. Somewhat likely
  - e. Very likely
  
2. When angry or mad at a peer how likely are you to try to damage his/her reputation by passing on negative information?
  - a. Not at all likely
  - b. Not very likely
  - c. A little likely
  - d. Somewhat likely
  - e. Very likely
  
3. When angry or mad at a peer how likely are you to try to retaliate by excluding him/her from group activities?
  - a. Not at all likely
  - b. Not very likely
  - c. A little likely
  - d. Somewhat likely
  - e. Very likely
  
4. How likely are you to intentionally ignore a peer, until s/he agrees to do something you want them to do?
  - a. Not at all likely
  - b. Not very likely
  - c. A little likely
  - d. Somewhat likely
  - e. Very likely
  
5. How likely are you to make it clear to a peer that you will think less of him/her unless they do what you want them to do?
  - a. Not at all likely
  - b. Not very likely
  - c. A little likely
  - d. Somewhat likely
  - e. Very likely
  
6. How likely are you to threaten to share private information with others in order to get a peer to comply with your wishes?
  - a. Not at all likely
  - b. Not very likely
  - c. A little likely
  - d. Somewhat likely
  - e. Very likely
  
7. When angry or mad at a same-sex peer, how likely are you to try and steal that person's dating partner to get back at them?

- a. Not at all likely
- b. Not very likely
- c. A little likely
- d. Somewhat likely
- e. Very likely

APPENDIX E  
VERBATIM ORAL INSTRUCTIONS GIVEN TO PARTICIPANTS

Thank you for agreeing to participate in this research! The purpose of this research is to look at relationships among high school students, and understanding aggression amongst high school students. There is no wrong answer on this survey, and no one will know your answers. So please, **DO NOT PUT YOUR NAME ON ANY PART OF THIS SURVEY**. Since your identity will remain confidential, and no one will know your answers, **PLEASE ANSWER HONESTLY**. If you have any questions, please raise your hand and I will come to your desk to explain the questions.

APPENDIX F  
INFORMED CONSENT/ASSENT LETTERS



INFORMED CONSENT

PRINCIPAL INVESTIGATOR: Karla B. Horton, LMSW

TITLE OF PROJECT: The Relational Aggression Measure: Development and Validation

This Informed Consent will explain about being a research subject in this research. It is important that you read this material carefully and then decide if you wish to be a volunteer.

PURPOSE:

The purpose of this research study is to find out about relationships, including aggressive relationships among high school students who attend Cedar Hill Independent School District's high school and alternative school. This research is being done to help develop an instrument to better understand relationships among high school students.

DURATION:

A survey will be used to ask students questions about relationships among high school students. Completing this survey will take approximately 30-50 minutes. Approximately 200 students will participate and the study site will be their school (either the high school or the alternative school).

PROCEDURES:

The procedures, which will involve your child as a research subject, include the following:

Students who participate in the research will be given the paper/pencil survey during the school approved times. The high school students will receive the survey during their health class and alternative school students will receive the survey during their orientation to the school. After the completion of the survey, your student will receive a ticket for participation in a pizza party at the school during their lunch or elective period.

POSSIBLE RISKS/DISCOMFORTS:

Although a few students may find some questions on the survey upsetting, there are no possible risks and/or discomforts to your student as a result of their participation in this research.

POSSIBLE BENEFITS:

The possible benefits of your student's participation in this research will be to use this information to help students and school personnel better understand interpersonal relationships, including aggression among high school students. This information will also be used to develop prevention and intervention programs to help students work together to reduce aggression in high school settings.

MAY 0 5 2009  
APPROVED BY THE UTA - IRB  
The IRB approval for this consent  
Document will expire on

\_\_\_\_\_ Subject Initials

MAY 0 4 2010



PRINCIPAL INVESTIGATOR: Karla B. Horton, LMSW

TITLE OF PROJECT: The Relational Aggression Measure: Development and Validation

ALTERNATIVE PROCEDURES / TREATMENTS:

If you choose not to have your student participate in this research the student will be given an alternate non-research paper/pencil activity.

CONFIDENTIALITY:

Every attempt will be made to see that your study results are kept confidential. A copy of the records from this study will be stored in the University of Texas at Arlington/ School of Social Work Building A, Room 201C for at least three (3) years after the end of this research. The results of this study may be published and/or presented at meetings without naming you as a subject. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the UTA IRB, and UTA School of Social Work personnel particular to this research have access to the study records. Your Consent/Assent Forms will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above.

FINANCIAL COSTS

There will be no cost for your student to participate in this research.

CONTACT FOR QUESTIONS:

If you have any questions, problems or research-related medical problems at any time, you may call Karla Horton at 972-291-1581 ext 4126, or Debra Woody at 817-272-5228. You may call the Chairperson of the Institutional Review Board at 817-272-3723 for any questions you may have about your rights as a research subject.

VOLUNTARY PARTICIPATION

Participation in this research experiment is voluntary. Your student may refuse to participate or quit at any time. As your student's guardian, you or your student may choose to quit or refuse to participate at any time. You may quit by calling Karla Horton, whose phone number is 972-291-1581 ext.4126. You will be told immediately if any of the results of the study should reasonably be expected to make you change your mind about staying in the study.

MAY 0 5 2009

APPROVED BY THE UTA - IRB  
The IRB approval for this consent  
Document will expire on

\_\_\_\_\_ Subject Initials

Last Revised 02/03/09

Page 2 of 4

MAY 0 4 2010



THE UNIVERSITY OF TEXAS  
AT ARLINGTON

PRINCIPAL INVESTIGATOR: Karla B. Horton, LMSW

TITLE OF PROJECT: The Relational Aggression Measure: Development and Validation

By signing below, you confirm that you have read or had this document read to you. You will be given a signed copy of this informed consent document. You have been and will continue to be given the chance to ask questions and to discuss your participation with the investigator.

You freely and voluntarily choose to be in this research project.

PRINCIPAL INVESTIGATOR: \_\_\_\_\_ DATE \_\_\_\_\_

SIGNATURE OF VOLUNTEER \_\_\_\_\_ DATE \_\_\_\_\_

SIGNATURE OF PATIENT/LEGAL GUARDIAN (if applicable) \_\_\_\_\_ DATE \_\_\_\_\_

**MAY 0 5 2009**

**APPROVED BY THE UTA - IRB**  
The IRB approval for this consent  
Document will expire on

**MAY 0 4 2010**



THE UNIVERSITY OF TEXAS  
AT ARLINGTON

PRINCIPAL INVESTIGATOR: Karla B. Horton, LMSW

TITLE OF PROJECT: The Relational Aggression Measure: Development and Validation

FOR MINOR PARTICIPANTS

**ASSENT:**

By signing below, you confirm that you have read this document or had this document read to you. You have been informed about the study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been informed that you can ask other questions at any time. You understand that since you are less than 18 years of age that your parent(s)/legal guardian(s) have consented for your participation.

You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled, and you may discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled.

\_\_\_\_\_  
SIGNATURE OF MINOR VOLUNTEER

\_\_\_\_\_  
Date

**MAY 0 5 2009**

**APPROVED BY THE UTA - IRB**  
The IRB approval for this consent  
Document will expire on

**MAY 0 4 2010**

APPENDIX G  
CORRELATION MATRIX

**Correlation Matrix**

	RAHORT01	RAHORT02	RAHORT03	RAHORT04	RAHORT05
Sig. (1-tailed)					
RAHORT01		.000	.000	.218	.000
RAHORT02	.000		.001	.397	.013
RAHORT03	.000	.001		.287	.000
RAHORT04	.218	.397	.287		.359
RAHORT05	.000	.013	.000	.359	
RAHORT06	.134	.016	.114	.027	.001
RAHORT07	.000	.002	.000	.260	.000
RAHORT08	.000	.000	.401	.490	.000
RAHORT09	.001	.131	.406	.007	.022
RAHORT10	.001	.098	.001	.409	.000
RAHORT11	.111	.027	.394	.367	.463
RAHORT12	.190	.195	.106	.345	.075
RAHORT13	.004	.011	.032	.302	.187
RAHORT14	.146	.118	.126	.112	.008
RAHORT15	.000	.002	.000	.279	.000
RAHORT16	.000	.000	.000	.117	.000
RAHORT17	.000	.008	.000	.315	.001
RAHORT18	.012	.004	.022	.018	.017
RAHORT19	.001	.000	.000	.218	.026
RAHORT20	.181	.001	.240	.115	.287
RAHORT21	.052	.006	.010	.210	.019
RAHORT22	.097	.051	.106	.364	.023
RAHORT23	.435	.076	.304	.054	.485
RAHORT24	.288	.226	.009	.364	.328
RAHORT25	.015	.330	.001	.247	.020
RAHORT26	.315	.169	.300	.057	.112

RAHORT27	.015	.000	.023	.395	.023
RAHORT28	.000	.000	.000	.209	.000

**Correlation Matrix**

	RAHORT06	RAHORT07	RAHORT08	RAHORT09	RAHORT10
Sig. (1-tailed) RAHORT01	.134	.000	.000	.001	.001
RAHORT02	.016	.002	.000	.131	.098
RAHORT03	.114	.000	.401	.406	.001
RAHORT04	.027	.260	.490	.007	.409
RAHORT05	.001	.000	.000	.022	.000
RAHORT06		.001	.098	.003	.133
RAHORT07	.001		.009	.006	.000
RAHORT08	.098	.009		.008	.001
RAHORT09	.003	.006	.008		.037
RAHORT10	.133	.000	.001	.037	
RAHORT11	.009	.046	.153	.322	.035
RAHORT12	.019	.448	.029	.440	.079
RAHORT13	.270	.080	.316	.037	.009
RAHORT14	.000	.113	.336	.008	.178
RAHORT15	.005	.000	.007	.104	.004
RAHORT16	.002	.000	.000	.074	.000
RAHORT17	.120	.000	.100	.000	.000
RAHORT18	.051	.025	.031	.198	.079
RAHORT19	.429	.008	.298	.454	.251
RAHORT20	.040	.115	.242	.254	.397
RAHORT21	.010	.219	.057	.180	.061
RAHORT22	.333	.096	.474	.250	.416
RAHORT23	.200	.387	.104	.296	.192
RAHORT24	.102	.140	.191	.162	.199

RAHORT25	.028	.144	.338	.194	.001
RAHORT26	.358	.165	.307	.252	.474
RAHORT27	.044	.001	.304	.395	.239
RAHORT28	.061	.001	.000	.003	.001

**Correlation Matrix**

	RAHORT11	RAHORT12	RAHORT13	RAHORT14	RAHORT15
Sig. (1-tailed) RAHORT01	.111	.190	.004	.146	.000
RAHORT02	.027	.195	.011	.118	.002
RAHORT03	.394	.106	.032	.126	.000
RAHORT04	.367	.345	.302	.112	.279
RAHORT05	.463	.075	.187	.008	.000
RAHORT06	.009	.019	.270	.000	.005
RAHORT07	.046	.448	.080	.113	.000
RAHORT08	.153	.029	.316	.336	.007
RAHORT09	.322	.440	.037	.008	.104
RAHORT10	.035	.079	.009	.178	.004
RAHORT11		.000	.041	.250	.009
RAHORT12	.000		.338	.135	.220
RAHORT13	.041	.338		.020	.100
RAHORT14	.250	.135	.020		.000
RAHORT15	.009	.220	.100	.000	
RAHORT16	.394	.453	.497	.407	.000
RAHORT17	.288	.129	.099	.141	.007
RAHORT18	.005	.153	.046	.008	.000
RAHORT19	.024	.304	.104	.002	.003
RAHORT20	.158	.027	.009	.000	.179
RAHORT21	.475	.101	.083	.000	.111
RAHORT22	.159	.408	.127	.061	.006

RAHORT23	.074	.064	.051	.000	.024
RAHORT24	.237	.302	.354	.003	.170
RAHORT25	.115	.072	.234	.008	.100
RAHORT26	.456	.453	.012	.130	.145
RAHORT27	.012	.140	.000	.002	.000
RAHORT28	.198	.402	.374	.340	.016

**Correlation Matrix**

	RAHORT16	RAHORT17	RAHORT18	RAHORT19	RAHORT20
Sig. (1-tailed) RAHORT01	.000	.000	.012	.001	.181
RAHORT02	.000	.008	.004	.000	.001
RAHORT03	.000	.000	.022	.000	.240
RAHORT04	.117	.315	.018	.218	.115
RAHORT05	.000	.001	.017	.026	.287
RAHORT06	.002	.120	.051	.429	.040
RAHORT07	.000	.000	.025	.008	.115
RAHORT08	.000	.100	.031	.298	.242
RAHORT09	.074	.000	.198	.454	.254
RAHORT10	.000	.000	.079	.251	.397
RAHORT11	.394	.288	.005	.024	.158
RAHORT12	.453	.129	.153	.304	.027
RAHORT13	.497	.099	.046	.104	.009
RAHORT14	.407	.141	.008	.002	.000
RAHORT15	.000	.007	.000	.003	.179
RAHORT16		.001	.003	.230	.040
RAHORT17	.001		.029	.000	.224
RAHORT18	.003	.029		.026	.033
RAHORT19	.230	.000	.026		.096
RAHORT20	.040	.224	.033	.096	

RAHORT21	.085	.086	.186	.000	.000
RAHORT22	.016	.202	.112	.016	.000
RAHORT23	.441	.029	.288	.000	.000
RAHORT24	.038	.143	.364	.212	.000
RAHORT25	.095	.000	.093	.265	.027
RAHORT26	.294	.409	.409	.010	.037
RAHORT27	.006	.219	.165	.000	.143
RAHORT28	.000	.000	.026	.011	.110

**Correlation Matrix**

		RAHORT21	RAHORT22	RAHORT23	RAHORT24	RAHORT25
Sig. (1-tailed)	RAHORT01	.052	.097	.435	.288	.015
	RAHORT02	.006	.051	.076	.226	.330
	RAHORT03	.010	.106	.304	.009	.001
	RAHORT04	.210	.364	.054	.364	.247
	RAHORT05	.019	.023	.485	.328	.020
	RAHORT06	.010	.333	.200	.102	.028
	RAHORT07	.219	.096	.387	.140	.144
	RAHORT08	.057	.474	.104	.191	.338
	RAHORT09	.180	.250	.296	.162	.194
	RAHORT10	.061	.416	.192	.199	.001
	RAHORT11	.475	.159	.074	.237	.115
	RAHORT12	.101	.408	.064	.302	.072
	RAHORT13	.083	.127	.051	.354	.234
	RAHORT14	.000	.061	.000	.003	.008
	RAHORT15	.111	.006	.024	.170	.100
	RAHORT16	.085	.016	.441	.038	.095
	RAHORT17	.086	.202	.029	.143	.000
	RAHORT18	.186	.112	.288	.364	.093

RAHORT19	.000	.016	.000	.212	.265
RAHORT20	.000	.000	.000	.000	.027
RAHORT21		.000	.000	.047	.101
RAHORT22	.000		.000	.074	.210
RAHORT23	.000	.000		.000	.001
RAHORT24	.047	.074	.000		.000
RAHORT25	.101	.210	.001	.000	
RAHORT26	.031	.011	.032	.039	.427
RAHORT27	.097	.022	.000	.194	.227
RAHORT28	.003	.006	.365	.400	.021

**Correlation Matrix**

	RAHORT26	RAHORT27	RAHORT28
Sig. (1-tailed) RAHORT01	.315	.015	.000
RAHORT02	.169	.000	.000
RAHORT03	.300	.023	.000
RAHORT04	.057	.395	.209
RAHORT05	.112	.023	.000
RAHORT06	.358	.044	.061
RAHORT07	.165	.001	.001
RAHORT08	.307	.304	.000
RAHORT09	.252	.395	.003
RAHORT10	.474	.239	.001
RAHORT11	.456	.012	.198
RAHORT12	.453	.140	.402
RAHORT13	.012	.000	.374
RAHORT14	.130	.002	.340
RAHORT15	.145	.000	.016
RAHORT16	.294	.006	.000

RAHORT17	.409	.219	.000
RAHORT18	.409	.165	.026
RAHORT19	.010	.000	.011
RAHORT20	.037	.143	.110
RAHORT21	.031	.097	.003
RAHORT22	.011	.022	.006
RAHORT23	.032	.000	.365
RAHORT24	.039	.194	.400
RAHORT25	.427	.227	.021
RAHORT26		.001	.336
RAHORT27	.001		.092
RAHORT28	.336	.092	

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