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The Relationship Between Anger Rumination and Aggression in Childhood

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THE FLORIDA STATE UNIVERSITY

COLLEGE OF ARTS AND SCIENCES

THE RELATIONSHIP BETWEEN ANGER RUMINATION AND AGGRESSION IN
CHILDHOOD

By

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ABSTRACT

The tendency to ruminate to anger has been hypothesized to be linked to the development, exacerbation and maintenance of aggression. Some studies have established that a relationship between anger rumination and aggression exists in adults, however, no studies have been conducted in a sample of children. The goal of this study was to explore the construct of anger rumination in childhood and to establish its concurrent and predictive relationship with aggression. In addition, sex and developmental differences in the tendency to ruminate to anger and in the relationship of anger rumination to aggression were explored. Adapting an anger rumination used in adult samples yielded a measure for children which was demonstrated to be reliable and valid in this sample. Results revealed a concurrent relationship between anger rumination and aggression as well as some support for a predictive relationship between anger rumination and overt aggression. Results offer mixed support for the hypothesis that boys ruminate to anger more than girls. Study limitations and future directions for research are discussed.

CHAPTER ONE

INTRODUCTION

The Relationship Between Anger Rumination and Aggression in Childhood

Aggression in childhood is an often-studied behavioral phenomenon due to the demonstrated negative outcomes associated with it. Children who are aggressive have been shown to have significantly more immediate and long-term interpersonal, psychological and educational difficulties than their non-aggressive peers (Berkowitz, 1993; Dodge & Coie, 1987; Parker & Asher, 1987; Kupersmidt & Coie 1992; Patterson, 1992). In addition, children who are aggressive place an excessive strain on social systems such as their families, their schools, correctional systems and mental health systems (Abikoff & Klein, 1992). Estimates of the incidence of clinical levels of childhood aggression indicate that at any given point in time, between 4% and 12 % of boys and between 2% and 7% of girls exhibit significantly problematic aggressive behaviors (Lahey et al., 2000). Bullying, a form of aggression, is estimated to affect between 10% and 23% of school-age children either as victims or aggressors (Pepler, Craig, Zeigler & Charach, 1993), further emphasizing the impact of aggression in the lives of children and adolescents and those who interact with them.

The developmental path of aggression is of great interest to researchers and professionals who interact with aggressive children. Many theories about aggression have been posited in an effort to explain why some children become aggressive and in an effort to inform the development of interventions designed to reduce aggressive behavior and increase positive interpersonal behaviors and experiences for aggressive children. These theories include social learning, cognitive and pre-cognitive, biological, and skill-based components. The primary purpose of this study was to explore one possible contributing variable to the development of aggression in childhood. Specifically, the relationship between the tendency to ruminate to anger and concurrent and subsequent increase in aggression over time was examined in a sample of school age children. In addition, sex differences in the tendency to ruminate to anger were explored. The following sections summarize the current theories and findings relevant to the constructs examined in the present study.

Emotional Regulation and the Relationship Between Anger and Aggression

One theoretical focus for the development of aggression in childhood emphasizes the importance of emotional response styles, which refers to individual differences in the internal and external handling of emotion and includes the concepts of emotional regulation and general competence when coping with unpleasant emotion. Emotional regulation refers to “monitoring, evaluating and modifying” emotions (Thompson, 1994) and can be further divided and classified into the internal regulation of emotional experiences or the regulation of the external expression of emotion (Eisenberg and Fabes, 1999). Emotional competence overlaps somewhat with emotional regulation in that it refers to a set of skills that include emotion appraisal, expression and understanding (Saarni, 1999; Bohnert, Crnic, & Lim, 2003). Logically, one would need certain emotional competence skills (e.g. appropriate identification of emotion) in order to effectively regulate or respond to negative emotions.

Within the broader concept of emotional responding, the regulation of and response to anger have been of particular interest to childhood aggression scholars because of the intuitive and empirical link between anger and aggression.

Anderson and Bushman (2002) articulate a description of five of the theoretical ways in which anger is causally related to aggression. First, they assert that anger provides justification for retaliatory aggression. Second, anger informs people about the origins, responsibility, and possible ways to respond to anger-inducing events. Third, anger increases the level of psychological and physiological arousal. Fourth, and related to increased arousal, anger primes aggressive thoughts. Finally, anger feeds aggressive goals thus allowing for the perpetuation and often the inflation of these goals over time.

In addition to being theoretically linked, childhood anger and aggression are empirically linked. Empirical research has demonstrated that children who are aggressive experience and express more anger (and associated negative emotions such as hostility and frustration) than do non-aggressive children, including non-aggressive children who exhibit difficulty with other negative emotions such as sadness and anxiety (Eisenberg and Fabes, 1999; Underwood, Coie & Herbsman, 1992; Cole, Zahn-Waxler, 1990; Eisenberg et al., 1996; Hubbard, 2001).

It has also been demonstrated that aggressive children exhibit differences in how they manage and express anger. For example, aggressive children have more difficulty generating strategies for regulating the external expression and internal experience of anger (Denham et al., 1990; Hubbard, 2001). In a study by Shields and Cicchetti (1998), aggressive, school-age

children showed deficient verbal emotional expression skills when angered. Arsentio, Cooperman & Lover (2000) observed preschool children and found that non-aggressive expressions of anger were positively associated with aggressive acts. Similarly, Bohnert, Crnic and Lim (2003) examined emotional competence in an anger-provoking situation in a sample of 7-10 year olds. Their findings suggest that children who were rated by their mothers on a standardized behavioral rating scale as being more aggressive exhibited more intense and frequent displays of anger during the observational period following the anger-provoking situation.

Dearing et al. (2002) conducted a study with second grade children which demonstrated that while anger was not directly predictive of aggression, the relationship between anger and aggression variables was moderated by nonverbal anger expression such that children who reported experiencing elevated levels of anger and exhibited high rates of nonverbal expression of that anger were rated as more aggressive by their peers. In this study, children were randomized to either a fair game or an unfair game condition and their responses to the game were recorded in a number of ways (e.g. self report of level of anger and observational data of angry expressions). Nonverbal anger expression was indexed by observational data of two behaviors during the experiment- using game materials roughly and displaying frustration. These findings suggest that not only are anger and aggression in childhood linked, emotion response, that is the tendency of children to experience elevated anger in an anger-inducing situation and display frustration behaviors, seems to be a contributing variable in development of aggression.

Response Styles Theory

One theory about the link between the way children process and regulate anger and aggression states that children who ruminate about anger will have more problems with aggressive behavior. This theory is derived from findings that support the response styles theory proposed by Nolen-Hoeksema (1987, 1991), which posited that individuals' responses to sadness will affect their future level of depressive symptoms. Specifically, this theory states that those who ruminate in response to their sad or depressed moods will experience an increase in depression, and those who distract themselves will not experience that same increase.

Nolen-Hoeksema's theory was well-defined and included a description of the three mechanisms by which rumination affects depressive symptoms. First, individuals with a ruminative response style to sadness have an interpretation bias that results in an overly negative interpretation of events, because negative beliefs and memories associated with the depressed mood are more prominent. Second, individuals with a ruminative response style are consumed by their repetitive thoughts about their own mood and therefore have reduced ability to concentrate and effectively problem-solve. Finally, individuals who ruminate and subsequently experience lessened cognitive efficiency and problem-solving ability fail to engage in activities that would likely increase their mood or protect them from further mood deterioration.

In fact, many studies have shown that a concurrent and prospective link between rumination to sadness and depression exists in adults (Carver & Scheier, 1990; Nolen-Hoeksema, 1991). Although far fewer in number, similar studies of these constructs in childhood support the concurrent relationship between rumination and depression (Abela et al. 2002; Kistner & Ziegert, 2002). Additionally, Abela et al. (2002) demonstrated a significant, positive, predictive relationship between rumination to sadness and depression in children over a six-week interval.

Anger, Rumination to Anger and Subsequent Aggression

Given that Nolen-Hoeksema's original response styles theory has been empirically supported, others, including Nolen-Hoeksema, have sought to extend the theory to include cognitive responses to other types of negative emotion and the potentially detrimental outcomes of these responses—rumination to anger and aggression are two constructs that have been studied in the extension of the response styles theory.

Rusting and Nolen-Hoeksema (1998) published a summary of a series of experimental studies conducted to explore the relation between rumination, distraction and anger. Each experiment placed adult participants in a hypothetical, anger-inducing scenario and instructed participants to engage in one of three cognitive activities: ruminate to their angry feelings, distract themselves from their anger or choose whether they would like to ruminate or distract. Following the anger induction, participants were administered a variety of tasks designed to tap their anger. Rusting and Nolen-Hoeksema found that participants did, in fact, feel angrier after the mood induction than they did beforehand. Participants who ruminated to their anger were found to have increased feelings of both hostility and anger over the participants who distracted themselves. Despite this empirical link between anger rumination and increased anger, an

increase in anger does not automatically predict an increase in aggression. Although Rusting and Nolen-Hoeksema did not examine the link between anger rumination and aggression, other studies have. For example, Bushman, 2002 found that adult participants who were instructed to ruminate to an anger-inducing event (as opposed to distract or do nothing) showed an increase in both anger *and* subsequent aggression.

Though this may seem intuitively obvious, it is actually inconsistent with the long-held Freudian “catharsis theory” of anger and aggression popular with pop psychologists and the general public. This theory states that behaving aggressively while focusing on the anger-inducing event (e.g. hitting a punching bag while picturing someone who made you mad- the behavioral equivalent to rumination) will purge feelings of anger and result in less distress (Bushman, 2002).

A few other studies have examined the construct of anger rumination alone and as it relates to aggression. Sukhodolsky, Golub and Cromwell (2001) developed the Anger Rumination Scale (ARS) to measure anger rumination (defined as “the tendency to focus on angry moods, recall past anger episodes, and think over the causes and consequences of anger episodes”). In order to do this, they created an item pool of 30, rationally-derived statements hypothesized to be related to the construct of anger rumination, and subjected them to factor analysis, ultimately forming a measure with 19 items. They then conducted reliability and validity analyses within a college sample on the remaining items. Specifically, they conducted an exploratory factor analysis revealing four factors within the measure that they called Angry Afterthoughts, Thoughts of Revenge, Angry Memories, and Understanding of Causes. The ARS demonstrated adequate reliability; the internal consistency coefficient for the ARS was 0.93 and test-retest coefficient (over one month) was 0.77. It was also shown to have meaningful relationships with other measures of affect, personality and functioning. This measure correlated at a moderate level with measures of anger experience, anger expression and negative affectivity, and did not correlate with measures of emotion clarity, emotion repair, subjective well-being, social desirability, and anger control, demonstrating support for the measure’s convergent and discriminant validity.

One study that examined the tendency to ruminate to angry emotions and its effect on aggression was conducted by Collins and Bell (1997) in a sample of Irish undergraduate males. These researchers measured the tendency of participants to harbor negative thoughts through self-report on the Dissipation-Rumination Scale (Caprara, 1987). This scale is similar to other

measures of rumination and distraction, asking participants to report on their typical reactions to anger. The participants in this study were randomly assigned to one of two conditions: one that included an anger-provoking situation with a confederate, and one without the anger-provoking situation. Each group was given ten minutes after being provoked to respond or not respond to the confederate and the number of loud white noise blasts delivered to the confederate, the proxy for aggression, was measured. They found support for their hypothesis that a tendency to ruminate to anger was positively related to the level of aggression shown to the confederate.

Though there is some support for the relationship between anger rumination and aggression in adults, no studies to date have examined the relationship between these constructs in children. The primary goals of this study were to determine whether or not anger rumination can be reliably and validly assessed in childhood and to evaluate hypotheses regarding the concurrent and predictive relationship between anger rumination and aggression in childhood. In addition, sex differences in these constructs were explored. The following sections review literature relevant to sex differences in rumination and aggression.

Sex Differences in Ruminative Response Style

Response styles theory posits that there are sex differences in the tendency to ruminate to sadness. In fact, in adult samples, research has repeatedly demonstrated that women ruminate more than men (Blanchard-Fields, Sulsky, & Robinson-Whelen, 1991; Just & Alloy, 1997; Nolen-Hoeksema, Parker, & Larson, 1994; Nolen-Hoeksema, Grayson, & Larson, 1999; Roberts, Gilboa, & Gotlib, 1998). In most studies examining sex differences in ruminative responding to sad affect in childhood, girls have been found to ruminate more than boys (Broderick, 1998; Schwartz & Koenig, 1996; Ziegert & Kistner, 2001).

These findings, however, do not necessarily provide information about whether sex differences in ruminative responding to anger exist. It is possible that rumination is a general response style to negative affect, in which case it would be expected that, consistent with previous findings, girls would also show more rumination to anger than boys. Alternatively, the type of negative affect experienced could interact with gender to determine response style. Perhaps boys are more likely to ruminate to anger and girls to sadness. In fact, several studies have addressed this question in adult samples. Rusting and Nolen-Hoeksema (1998) found that men and women differ in their response to angering events: Women actively distract themselves from their anger more than men, and men tend to distract and ruminate equally in response to

neutral or angering events. Another study found gender differences on the “anger rumination” subscale of the Behavioral Anger Response Questionnaire (BARQ) (Linden et al., 2003), such that men tended to score higher on this subscale than women. Sukhodolsky, Golub and Cromwell (2001) reported means by gender on the Anger Rumination Scale (ARS) and its associated subscales in a sample of college students. Somewhat in contrast to the hypothesis that men ruminate in response to anger more than women, men scored significantly higher than women on only the Thought Revenge factor of the ARS.

To date, no study has examined gender differences in the tendency to ruminate to anger in childhood. However, sex differences in behavioral expression to situations that typically induce angry emotions have been demonstrated by a handful of studies (e.g. Bonhert, Crnic & Lim, 2003). For example, Underwood, Hurley, Johanson and Mosley (1999) demonstrated that girls showed sadness rather than anger when they lost a game to a peer. This was in contrast to boys’ reactions to the same situation; they demonstrated anger rather than sadness. In addition, Cole (1986) demonstrated that compared to boys, girls tended to minimize their expressions of negative emotions (such as anger and disappointment) when given an undesirable prize. Although no studies have demonstrated sex differences in the tendency to ruminate to anger in childhood, the findings of sex differences in the adult literature and the finding of sex differences in emotional expression when confronted with potentially angering situations points to potential sex differences in anger rumination in childhood.

Sex Differences in Aggression and the Subtypes of Aggression in Childhood

Sex differences in aggression in childhood are well-documented. Boys are consistently rated higher on measures of aggression by their teachers and parents than girls across all age groups in childhood (see Lahey et al., 2000 for a review). In addition, in a large, cross-sectional study of children ages 9 to 17 years old, boys were rated by their parents, peers, and combined parents and peers as more aggressive than girls (Lahey et al., 2000).

It is clear that boys tend to aggress more than girls in most studies of physical and verbal aggression. However, reviewers of childhood aggression research have criticized researchers who too narrowly define aggression, stating that a broader, more comprehensive definition of aggression might result in a better understanding of the nature of aggressive behaviors in girls. A subtype of aggression more typical of girls, including such behaviors as social ostracism of peers and rumor spreading, has been dubbed “relational aggression” and is distinguished from other

more traditionally male aggressive behaviors termed “overt aggression” (Crick & Grotpeter, 1995). Overt and relational aggression have been examined using peer nominations for behavioral characteristics of each, as well as teacher reports. Peer nominations and teacher report, using the Children’s Social Behavior Scale- Teacher Form (CSBS-T; Crick, 1996) of overt and relational aggression, are significantly positively correlated and both demonstrate construct validity in studies of gender differences in aggression (Crick, 1996; Crick & Werner, 1998; Crick, Grotpeter, 2002; Grotpeter & Crick, 1996). Many subsequent studies using peer nominations and the CSBS-T have supported the original overt/relational aggression hypothesis, that utilizing relational aggression items when studying aggression reveals more aggressive girls than using overt aggression items alone. In fact, girls and boys are identified as aggressive with almost equal frequency when both overt and relational aggression behaviors are assessed (Crick, Casas & Mosher, 1997; Crick & Grotpeter, 1995; Crick, Grotpeter & Bigbee, 2002).

Present Study

Models of the development of aggression in childhood have long included anger as a predictive variable. Although studies have shown that elevated levels of anger and poor anger coping skills are positively related to aggression, the mechanism of that relationship is not known. The tendency to ruminate to anger has been hypothesized to be linked to the development, exacerbation and maintenance of aggression. To date, few studies have examined the relationship between anger rumination and aggression. None have done so in a sample of children. In adult experimental studies, anger rumination measures appear reliable and valid, and have supported the hypothesized relationship between anger rumination and aggression. In addition, some evidence of sex differences in the tendency to ruminate to anger has emerged and it suggests that men tend to ruminate to anger more than women. The goal of this study was to explore the construct of anger rumination in childhood and to establish its relationship with aggression in an effort to further identify a model of the development of childhood aggression. In addition, sex and developmental differences in the tendency to ruminate to anger and in the relationship of anger rumination to aggression were explored. The following hypotheses were proposed:

1. *Children’s tendencies to ruminate to anger can be reliably and validly assessed in a sample of children in grades 2 through 9.*

2. Boys will engage in more anger rumination than girls (across age groups).

3. Anger rumination is associated with elevated aggression: It correlates concurrently and predicts increases in aggression over time.

CHAPTER 2

METHOD

Participants

The children who participated in this study were recruited from a pool of children who participated in a previous study (Time 1 data collection took place in February, 2003). The initial, Time 1 sample consisted of 303 second through seventh graders who attended Florida State University Developmental Research School, which is affiliated with Florida State University. There were 254 participants retained from the Time 1 sample who also participated in the Time 2 data collection. The majority of the participants from Time 1 who did not participate in the current study were lost due to moving out of the area and/or changing schools. Children who participated in both data collections and children who participated in the first wave only were compared on key variables and showed no statistically significant differences. The children who participated in both the Time1 and Time 2 data collection were in the fourth through ninth grades, and 50.4% female, 66.5% Caucasian, 19.7% African American, 7.9% Hispanic, 0.8% Asian/Pacific Islander, and 5.1% Biracial. Table 1 summarizes the demographics of the children who participated in both Time 1 and Time 2 data collections. The mean family income of the participants was \$60,000.

Approval from the Florida State University Internal Review Board (IRB) as well as county and school approval for all measures was obtained (please see Appendix A for a copy of initial IRB approval and renewal approval). Letters describing the study along with consent forms for multiple data collection periods were sent to the parents of all children who participated in the initial data collection (Appendix B). Assent forms were signed by all participating children prior to the initial data collection and were given again prior to the collection of data for this study (Appendix C).

Measures

Measures of Children's Response to Anger

Children's Anger Rumination Scale (CARS) (Appendix D). The CARS is a 19-item, Likert scale, self-report questionnaire adapted by students in our lab from Sukhodolsky et al.'s (2001)

measure of anger rumination (the Anger Rumination Scale), which was originally developed for adults and was found to be reliable (internally consistent and stable across time) and valid. Eight items from the ARS were kept exactly the same and the rest of the items were modified by changing vocabulary and/or sentence structure to be more developmentally appropriate for the participants in this study. For example, item 1 on the ARS states, “I ruminate about my past anger experiences,” and the revised corresponding item on the CARS states, “I think a lot about other times when I was angry.” Items were changed as minimally as possible to maximize the similarity with the original adult measure. The Cronbach’s Alpha for the CARS in this study was .91.

Children’s Responses to Hypothetical Angry Events Questionnaire (CRHAEQ) (Appendix E).

The CRHAEQ was modeled after a measure designed to assess children’s response styles to sadness (CRHSEQ; Zeigert & Kistner, 2001), which was originally adapted from a measure developed by Broderick (1998). The CRHAEQ is comprised of four hypothetical vignettes intended to evoke angry feelings (e.g., losing a friend, doing badly at school, peer rejection on the playground, etc.) and asks the respondent to indicate how he/she would respond to such an event using a 4-point Likert scale. The Cronbach’s Alpha for the CRHAEQ in this study was .86.

Measure of Rumination to Sad Moods

Children’s Response Styles Scale (CRSS) (Appendix F). Children’s response styles to sad mood was assessed using the Children’s Response Styles Scale (CRSS), which is a self-report questionnaire of children’s tendencies to ruminate or distract in response to sad affect. The CRSS is comprised of 20 questions that ask the responding child to rate on an 11-point Likert scale, the frequency with which they engage in ruminating or distracting behaviors. The CRSS was demonstrated to be a reliable and valid measure of children’s response styles for fourth and fifth grade children (Zeigert & Kistner, 2002) and in this study, the Cronbach’s Alpha was .92.

Measures of Aggression

Peer Sociometric Nominations (Appendix G). Overt and Relational Aggression were assessed using a peer nomination procedure that asks each student participant to nominate from a list of same-class participants children who best fit a set of descriptive statements. Student participants nominated three children in their respective classes on five examples of *overt aggression*, including: 1.) Hits, kicks, punches others, 2.) Says mean things to insult others or put them down, 3.) Pushes and shoves others, 4.) Tells other kids they will beat them up unless the kids do what they say, and 5.) Calls others mean names. Student participants also nominated three children in their respective classes on five examples of *relational aggression*, including: 1.) Tries to make other kids not like a certain person by spreading rumors about them, 2.) When mad at a person, gets even by keeping the person from being in their group of friends, 3.) When mad at a person, ignores them or stops talking to them, 4.) Tells friends they will stop liking them unless friends do what they say, and 5.) Tries to keep a certain person from being in their group during activity or play time. Nomination scores were standardized within class. The Cronbach's Alphas for the peer overt aggression and peer relational aggression nomination scales were .95 and .92, respectively.

Children's Social Behavior Scale – Teacher Form (CSBS – T) (Appendix H). The CSBS – T consists of 15-items in which children were rated based on their overt aggression, relational aggression, and prosocial behavior. Items were rated on a 5-point Likert scale (1 = Never True to 5 = Almost Always True) with higher scores representing higher ratings of aggression. Crick (1996) reported internal consistency reliabilities for both subscales of aggression as .94. The overt and relational subscales were used in this study. The Cronbach's Alphas for the overt and relational subscales were .68 and .76, respectively.

Demographics

Age, gender, SES, and ethnicity data were obtained for the sample from school records.

Table 1

Demographic Data for Children who Participated in Time 1 and Time 2 Data Collection Sessions

	N	Caucasian	African-American	Hispanic	Asian/Pacific Islander	Biracial
<u>4th – 9th</u>	254	169 (66.5)	50 (19.7)	20 (7.9)	2 (0.8)	13 (5.1)
Boys	126	83 (65.9)	22 (17.5)	11 (8.7)	1 (0.8)	9 (7.1)
Girls	128	86 (67.2)	28 (21.9)	9 (7.0)	1 (0.8)	4 (3.1)
<u>4th/5th</u>	86	60 (69.8)	16 (18.6)	5 (5.8)	—	5 (5.8)
Boys	42	29 (69.0)	8 (19.0)	3 (7.1)	—	2 (4.8)
Girls	44	31 (70.5)	8 (18.2)	2 (4.5)	—	3 (6.8)
<u>6th/7th</u>	84	53 (63.1)	16 (19.0)	7 (8.3)	2 (2.4)	6 (7.1)
Boys	43	25 (58.1)	8 (18.6)	4 (9.3)	1 (2.3)	5 (11.6)
Girls	41	28 (68.3)	8 (19.5)	3 (7.3)	1 (2.4)	1 (2.4)
<u>8th/9th</u>	84	56 (66.7)	18 (21.4)	8 (9.5)	—	2 (2.4)
Boys	41	29 (70.7)	6 (14.6)	4 (9.8)	—	2 (4.9)
Girls	43	27 (62.8)	12 (27.9)	4 (9.3)	—	—

Procedure

Following approval from the Florida State University Internal Review Board and the Florida State University Developmental Research School, data were collected in a group-administration format. Parental consent and child assent (both T1 and T2 data collections) were obtained. Time 1 data collection occurred during January and February of 2003, and Time 2 data collection occurred during November and December of 2004.

During both administrations, the children were instructed to complete a packet of questionnaires that ask about their feelings and experiences. The children were informed about confidentiality and given oral and written directions for each measure. During the administrations, research assistants were available to answer questions and monitor the administration so that the children did not discuss their answers with other children. For children who had trouble reading the questionnaires, individual assistance and/or extra time to complete the measures was provided.

CHAPTER THREE

RESULTS

Preliminary Analyses

Prior to the analyses, all variables were examined for missing values, assumptions of normality and linearity, skewness and kurtosis, and univariate and multivariate outliers. Necessary adjustments to the data were made according to data screening and handling procedures outlined by Tabachnick & Fidell (2001). A median-based method of identification indicated that there were no univariate outliers for any of the variables. Mahalanobis distances suggested that there were four multivariate outliers. After careful review of the data, no action was taken to correct the multivariate outliers because nothing suggested that their responses were inaccurate or invalid. Univariate normality was evaluated by examining the skew and kurtosis and was only problematic for the Overt Aggression subscale of the Social Behavior Scale at Time 1 and Time 2; therefore square root transformations were conducted to correct for non-normality.

The sample size across measures is somewhat inconsistent because two teachers who agreed to complete measures left the school before the project could be completed and there was not enough time for the new teachers to become familiar enough with the children's social behaviors to complete the questionnaires. In addition, one teacher felt she could not reliably comment on her students' relationally aggressive behaviors and therefore 8 children were missing relational aggression subscale scores on the SBS. Means and standard deviations and final sample sizes for all variables are included in Table 2.

Evaluation of the Reliability and Validity of the Children's Anger Rumination Scale and the Children's Responses to Hypothetical Angry Events Questionnaire

Both the CARS and the CRHAEQ were examined for internal consistency using Cronbach's Alpha coefficient estimation. Both demonstrated adequate internal consistency: The CARS had a Cronbach's Alpha of .91 and the CRHAEQ had a Cronbach's Alpha of .86. The Alphas for both the CARS and the CHRAEQ did not differ across age group or sex. In addition, the test-retest reliability coefficients for the CARS and the CRHAEQ were obtained by

regressing the Time 1 scores onto the Time 2 scores. The CARS reliability coefficient was .46 and the CRHAEQ reliability coefficient was .39 (both significant at the $p < .01$ level).

Convergent and discriminant validity of the CARS was examined to determine the validity of using this measure as an indicator of anger rumination in childhood.

The convergent validity of these measures was evaluated by computing the correlations between the CARS and the CRHAEQ for all children in the study. It was expected that these measures would correlate at a moderate to high rate because they are intended to measure the same construct. In fact, the correlation between Time 1 CARS and Time 1 CRHAEQ scores was .63 (significant at the $p < .01$ level) and the correlation between Time 2 CARS and Time 2 CRHAEQ scores was .67 (also significant at the $p < .01$ level).

The discriminant validity of these measures was evaluated by computing the correlations between each measure and a similar measure that assessed children's rumination to sadness. It was expected that there would be a low to moderate correlation between the CARS measure of rumination to anger and a similarly structured measure of rumination to sadness since, while these are distinct constructs, they likely overlap somewhat as there are likely children who ruminate as a general response to negative affective states. Somewhat in support of this hypothesis, the correlations between the Time 1 measure of anger rumination (CARS) and rumination to sadness were lower than the correlations between the two Time 1 measures of anger rumination, however, they were not as low as what was predicted, and the Time 2 patterns of correlations were opposite of what was hypothesized. Specifically, the correlation between Time 1 CARS and Time 1 CRSS was .57 ($p < .01$) and the correlation between Time 2 CARS and T2 CRSS was .70 ($p < .01$). Table 3 summarizes the internal consistencies and test-retest reliabilities and Table 4 displays the convergent and discriminant validities for the entire sample.

In addition, the reliability and validity analyses were conducted separately by age group and sex to determine if these measures are reliable and valid across developmental levels and sex. The internal consistency, test-retest reliability, and convergent and discriminant validity coefficients were similar across sex and age groups, and the data by group can be found in Table 4.

Although no predictions were made about the main effect of age on the CARS, an Analysis of Variance using age groups was conducted with the CARS as the dependant variable. There was a significant effect of age on the Time 1 and Time 2 CARS ($F(2,242) = 5.62, p < .01$ and $F(2,247) = 8.15, p < .00$, respectively). Post hoc comparisons revealed that the youngest

participants (4th/5th graders at Time 2 data collection) reported significantly more anger rumination on the Time 1 and Time 2 CARS than the 6th/7th graders and the 8th/9th graders. There were no differences between the 6th/7th and 8th/9th grade group means on the Time 1 and Time 2 CARS.

Sukhodolsky, Golub and Cromwell (2001) developed the Anger Rumination Scale (ARS) to measure anger rumination in adults. They conducted an exploratory factor analysis revealing four factors on the 19-item measure that they called Angry Afterthoughts, Thoughts of Revenge, Angry Memories, and Understanding of Causes. Although no specific predictions regarding the factor structure of the CARS were made for this study, a Principle Components Analysis (PCA) was run on the 19 items comprising the CARS (run for both Time 1 and Time 2 CARS). In contrast to Sukhodolsky, Golub and Cromwell's (2001) factor analysis of the ARS, the PCA of both Time 1 and Time 2 CARS using Varimax rotation revealed a single factor (the Time 1 eigenvalue for the 1-factor solution was 8.03 with 42.29% variance explained by the model and the Time 2 eigenvalue for the 1-factor solution was 7.59 with 39.83% variance explained by the model.) Time 1 and Time 2 item loadings on the single factor can be found in Table 5 and the scree plots can be seen in Figure 1.

Sex Differences in the Tendency to Ruminate to Anger

To test the hypothesis that boys ruminate to anger more than girls, t-tests were used to compare boys' and girls' scores on the CARS. In partial support for our hypothesis, boys reported significantly more anger rumination than girls on the Time 1 CARS (For boys, $M = 42.56$, $SD = 13.71$, for girls, $M = 36.41$, $SD = 11.84$); $t(243) = 3.76$, $P < .00$). However, this same sex difference was not found for the Time 2 CARS. This pattern was generally similar across age groups: 6th/7th and 8th/9th grade boys reported significantly more anger rumination than girls on the Time 1 CARS (for 6th/7th grade boys, $M = 40.04$, $SD = 12.93$ and for 6th/7th grade girls, $M = 33.45$, $SD = 33.45$; $t(80) = 2.44$, $p < .05$ and for 8th/9th grade boys, $M = 42.29$, $SD = 14.74$ and for 8th/9th grade girls, $M = 34.74$, $SD = 9.89$; $t(81) = 2.75$, $p < .01$), but not the Time 2 CARS. The 4th and 5th grade girls and boys did not report significantly different levels of anger rumination on the CARS at Time 1 or Time 2.

The Relationship Between Anger Rumination and Aggression in Children

The final hypothesis for this study predicted that anger rumination, as measured by the CARS, would positively correlate with aggression concurrently and that it would also predict changes in aggression over time. A series of regression analyses were conducted to determine if these predictions were supported.

Concurrent Relationship between anger rumination and aggression. To determine if anger rumination is significantly related to aggression, concurrent correlations between the CARS and the indices of aggression were examined. Four indices of aggression were used: from the SBS, teacher-rated overt aggression (SBS-Overt), teacher-rated relational aggression (SBS-Relational), and two indices of peer-rated aggression, peer-rated overt aggression (Peer-Overt), and peer-rated relational aggression (Peer-Relational).

In partial support for the hypothesis, Time 1 anger rumination was significantly correlated with each of the measures of aggression at Time 1, however, at Time 2, no significant correlations were found between anger rumination and aggression (Table 6 summarizes bivariate concurrent correlations for both Time 1 and Time 2 variables). Regression analyses examining the moderating affects of sex and age were run, and no significant moderating effects were found at Time 1 or Time 2 for two-way (anger rumination by sex, anger rumination by age) or three-way (anger rumination by sex by age) interaction terms. Table 7 and Table 8 list the results of the regression analyses with the Time 1 variables.

Additional regression analyses for Time 1 concurrent effects of anger rumination on each aggression measure were run with children's rumination to sadness (CRSS) as a covariate. Although the CRSS was significantly related to each measure of aggression, controlling for its effects on aggression did not render the effect of anger rumination insignificant. In fact, the standardized regression coefficients between the CRSS and each measure of aggression revealed that the tendency to ruminate to sadness was significantly related to *less* concurrent aggression at Time 1 ($\beta(4,236) = -.33, p = .00$; $\beta(4,236) = -.28; p = .00$; $\beta(4,236) = -.22, p < .01$; $\beta(4,236) = -.18, p < .05$ for teacher rated overt aggression, teacher rated relational aggression, peer rated overt aggression and peer rated relational aggression, respectively.) Controlling for Time 2 CRSS scores did not alter the pattern nor significance of the relationship between Time 2 CARS and the T2 aggression measures, and the Time 2 CRSS was not significantly correlated with any of the Time 2 aggression measures.

In order to determine the unique association of overt and relational aggression with anger rumination, separate concurrent regressions analyses were run with Teacher Overt and Teacher Relational Aggression and Peer Overt and Peer Relational Aggression regressed onto anger rumination. At Time 1, teacher reported overt aggression was significantly positively predictive of anger rumination ($\beta (2,237) = .23; p < .01$) controlling for teacher reported relational aggression, however, teacher reported relational aggression was not significantly associated with anger rumination ($\beta (2,237) = .02; p = .83$) after the effects of teacher reported overt aggression were partialled out. Time 1 peer reported overt aggression was not significantly predictive of anger rumination ($\beta (2,237) = .16; p = .20$) controlling for peer reported relational aggression, and peer reported relational aggression was not significantly associated with anger rumination ($\beta (2,237) = .44; p = .24$) after the effects of peer reported overt aggression were partialled out. The same regressions for the Time 2 variables yielded no significant unique effects of overt or relational aggression on anger rumination.

Predicting change in aggression. The third hypothesis in this study predicted that children who report more anger rumination on the CARS would become more aggressive over time. Table 8 displays bivariate correlations between Time 1 CARS and the Time 2 aggression indices—Time 1 CARS was significantly positively correlated with each of the four Time 2 aggression indices. To evaluate the third hypothesis, a series of regression analyses were run where Time 1 aggression (using each of the four aggression indices) was entered into the first step of the regression analyses, Time 2 aggression was the DV and Time 1 CARS was the IV. Although Time 1 CARS did not significantly predict change in teacher rated relational aggression (SBS-Relational) or either of the Peer rated indices of aggression (Peer-Overt and Peer-Relational), it did significantly predict change in teacher rated overt aggression ($R^2 = .16, F(2, 202) = 20.17; p < .001$) (See Table 10 for the results of all four regressions). In this equation, children who reported more anger rumination at Time 1 became more overtly aggressive over time as rated by their teachers. In addition to these main effects, moderating effects of sex and grade on the relationship between Time 1 CARS and change in aggression were examined. There were no moderating effects of sex and grade for teacher rated overt and relational aggression, nor for peer rated relational aggression. However, there were significant findings when these analyses were run for peer rated overt aggression. Specifically, there was a significant interaction between Time 1 CARS and age suggesting that age, moderates the relationship between Time 1 CARS

and change in peer rated overt aggression (See Table 11 for details). Two sets of follow up regression analyses were run comparing across age groups: One set compared older vs. younger participants using a dichotomous variable with children who were equal to or more than one SD above the mean as one group, and children who were equal to or below one SD. The other set compared participants based on their Time 2 grade (4th/5th graders vs. 6th/7th graders vs. 8th/9th graders). Neither regression for the older vs. younger participants using the dichotomous age variable revealed significant main effects of Time 1 CARS on change in Peer Overt Aggression. However, in the same analyses comparing across grade group, the 6th/7th grade participants (but not the 4th/5th graders or the 8th/9th graders) demonstrated significant main effects of Time 1 CARS on change in Peer Overt Aggression ($\beta(2,76) = .17; p < .05$). A graph of this interaction was created using the grade group variable and can be seen in Figure 1.

Additional regression analyses predicting change in aggression with Time 1 anger rumination were run with children's rumination to sadness (CRSS) as a covariate. CRSS was not significantly related to change in aggression and including it as a covariate did not alter the relationship between anger rumination and change in Teacher Relational Aggression and Peer Overt and Relational Aggression. However, adding CRSS to the regression equation predicting change in Teacher Overt Aggression rendered the effects of Time 1 anger rumination non-significant ($\beta(3,200) = .09; p = .33$).

Tests of bidirectional relationship between aggression and anger rumination. Although the theory of the relationship between anger rumination and aggression does not specifically address the possibility that aggression leads to more anger rumination over time, potential bi-directional relationships were examined in this study. Regression analyses were run with Time 1 CARS entered into the first step, Time 2 CARS as the DV and Time 1 aggression (using each of the four aggression indices) as the IV. None of the aggression indices predicted change in anger rumination from Time 1 to Time 2.

Table 2

Means and Standard Deviations for Time 1 and Time 2 Variables

	<u>Time 1</u>						
	CARS	CRHAEQ	CRSS RUM	Peer Overt	Peer Relational	Teacher Overt	Teacher Relational
<u>4th – 9th</u>	39.9 (13.1)	28.6 (11.9)	48.9 (21.1)	-.04 (.96)	-.01 (.99)	5.5 (2.9)	10.1 (4.9)
Boys	42.6 (13.7)	29.9 (11.7)	47.5 (21.4)	.28 (1.17)	.14 (1.1)	5.9 (3.1)	9.7 (4.3)
Girls	36.4 (11.8)	27.3 (11.9)	50.3 (20.7)	-.37 (.593)	-.17 (.85)	5.2 (2.6)	10.5 (5.4)
<u>4th /5th</u>	43.4 (13.1)	30.7 (11.8)	52.9 (18.4)	-.11 (.88)	-.11 (.91)	5.6 (2.8)	10.4 (4.9)
Boys	45.4 (13.2)	32.6 (10.6)	52.8 (19.6)	.15 (1.09)	-.02 (.98)	6.3 (3.4)	9.8 (4.1)
Girls	41.2 (12.9)	28.9 (12.8)	53.1 (26.7)	-.36 (.52)	-.19 (.83)	4.9 (1.9)	10.9 (5.7)
<u>6th /7th</u>	36.8 (12.6)	27.8 (11.9)	47.4 (21.9)	-.05 (.99)	-.03 (.98)	5.4 (3.1)	9.3 (4.8)
Boys	40.0 (12.9)	29.3 (12.2)	46.3 (20.8)	.41 (1.14)	.36 (1.14)	5.6 (2.9)	9.5 (4.9)
Girls	33.5 (11.5)	26.3 (11.6)	48.4 (23.2)	-.56 (.39)	-.46 (.54)	5.2 (3.3)	9.1 (4.7)
<u>8th /9th</u>	38.5 (13.0)	27.2 (11.7)	46.5 (22.3)	.04 (1.02)	.09 (1.07)	5.6 (2.8)	10.6 (4.9)
Boys	42.3 (14.7)	27.8 (12.2)	43.3 (23.1)	.29 (1.29)	.09 (1.15)	5.9 (2.9)	9.9 (4.0)
Girls	34.7 (9.9)	26.7 (11.3)	49.4 (21.4)	-.20 (.60)	.10 (1.01)	5.4 (2.4)	11.3 (5.7)
	<u>Time 2</u>						
	CARS	CRHAEQ	CRSS RUM	Peer Overt	Peer Relational	Teacher Overt	Teacher Relational
<u>4th – 9th</u>	35.4 (11.2)	25.5 (11.1)	45.3 (25.9)	-.02 (.92)	-.02 (.96)	5.7 (3.2)	11.2 (5.4)
Boys	36.3 (10.8)	26.1 (10.5)	44.7 (24.3)	.21 (1.03)	-.09 (.85)	6.4 (3.8)	11.1 (5.3)
Girls	34.5 (11.4)	24.9 (11.7)	45.9 (27.6)	-.25 (.74)	.07 (1.05)	5.0 (2.2)	11.3 (5.6)
<u>4th /5th</u>	39.3 (11.1)	28.6 (11.2)	52.9 (18.4)	-.01 (.98)	-.02 (.96)	5.9 (3.6)	11.2 (6.0)
Boys	39.2 (11.4)	27.9 (9.4)	54.2 (25.5)	.33 (1.13)	-.09 (.86)	6.9 (4.6)	10.7 (6.2)
Girls	39.4 (10.8)	29.3 (12.8)	55.1 (26.8)	-.36 (.52)	-.19 (.83)	5.0 (1.9)	11.6 (5.9)
<u>6th /7th</u>	33.8 (11.4)	24.3 (10.7)	40.9 (24.8)	-.06 (.79)	-.02 (.93)	5.6 (2.9)	9.8 (4.3)
Boys	34.7 (11.1)	25.1 (10.7)	38.9 (21.6)	.41 (1.14)	.36 (1.14)	6.7 (3.7)	10.5 (4.6)
Girls	32.9 (11.8)	23.5 (10.8)	43.0 (27.7)	-.30 (.56)	-.02 (1.05)	4.3 (.7)	9.1 (4.1)
<u>8th /9th</u>	33.1 (10.2)	23.7 (10.9)	40.3 (24.7)	.00 (.99)	.00 (.99)	5.5 (2.7)	12.6 (5.2)
Boys	34.9 (10.1)	25.4 (11.3)	41.0 (23.2)	.12 (1.06)	-.18 (.89)	5.3 (2.4)	12.2 (4.6)
Girls	31.2 (10.1)	22.1 (10.5)	39.6 (26.4)	-.12 (.92)	.17 (1.06)	5.6 (3.0)	12.9 (5.7)

Table 3

Internal Consistencies and Test-Retest Reliabilities of the CARS and the CRHAEQ

	4 th -9 th Graders	4 th /5 th Graders	6 th /7 th Graders	8 th /9 th Graders
CARS T1 α	.92	.92	.91	.93
CARS T2 α	.91	.89	.91	.92
CRHAEQ T1 α	.89	.96	.85	.89
CRHAEQ T2 α	.86	.83	.86	.89
CARS T1-T2 r	.46**	.36**	.43**	.50**
CRHAEQ T1-T2 r	.39**	.31**	.38**	.43**

Note. CARS = Children's Anger Rumination Scale; CRHAEQ = Children's Response to Hypothetical Angry Events Questionnaire

** $p < .01$.

Table 4

Convergent and Discriminant Validity of the CARS

	1	2	3	4	5	6
1. T1 CARS	---					
2. T1 CRHAEQ	.63**	---				
3. T1 CRSS	.57**	.50**	---			
4. T2 CARS	.46**	.32**	.32**	---		
5. T2 CRHAEQ	.37**	.39**	.27**	.67**	---	
6. T2 CRSS	.36**	.29**	.40**	.77**	.63**	---
<u>M</u>	39.5	28.6	48.9	35.4	25.5	45.3
<u>SD</u>	13.2	11.9	21.1	11.2	11.1	25.9

Note. CARS = Children's Anger Rumination Scale; CRHAEQ = Children's Response to Hypothetical Angry Events Questionnaire

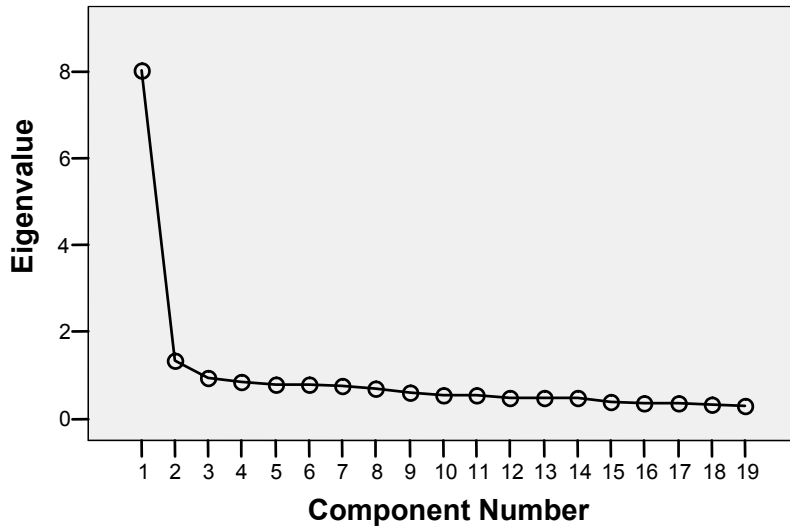
** $p < .01$; * $p < .05$.

Table 5

Children's Anger Rumination Scale Item Loadings on Single Factor from Principle Components Analysis

CARS Item	Factor Loading Time 1	Factor Loading Time 2
CARS 1	.62	.63
CARS 2	.58	.61
CARS 3	.68	.70
CARS 4	.59	.54
CARS 5	.71	.68
CARS 6	.63	.61
CARS 7	.64	.55
CARS 8	.63	.57
CARS 9	.73	.70
CARS 10	.67	.54
CARS 11	.40	.40
CARS 12	.65	.66
CARS 13	.58	.52
CARS 14	.70	.67
CARS 15	.70	.58
CARS 16	.62	.70
CARS 17	.67	.70
CARS 18	.76	.76
CARS 19	.72	.76

**Time 1 CARS
Factor Analysis Scree Plot**



**Time 2 CARS
Factor Analysis Scree Plot**

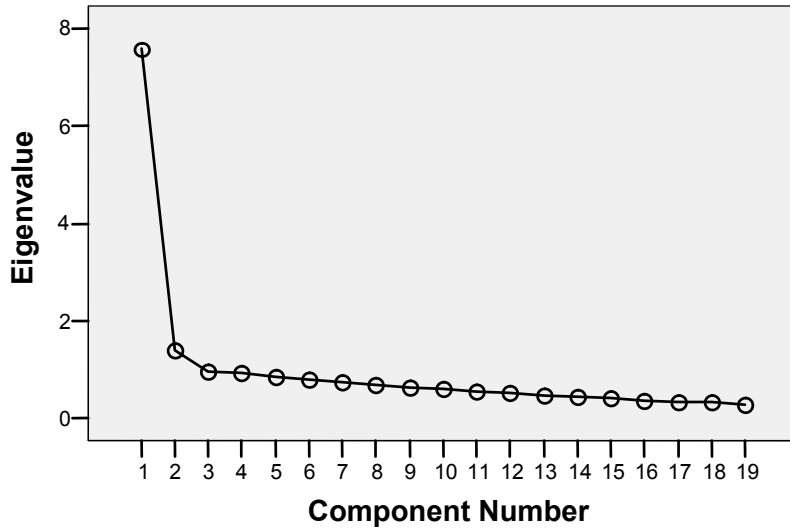


Figure 1. Scree Plots from Factor Analysis of items on the T1 and T2 CARS

Table 6

Concurrent Correlations Between Anger Rumination and Aggression Indices

Time 1				
	1	2	3	4
1. CARS T1				
2. SBS-Overt T1	.25**			
3. SBS-Relational T1	.19**	.74**		
4. Peer Overt T1	.28**	.67**	.50**	
5. Peer Relational T1	.27**	.63**	.59**	.86**
Time 2				
	1	2	3	4
1. CARS T2				
2. SBS-Overt T2	.08			
3. SBS-Relational T2	.06	.73**		
4. Peer Overt T2	.11	.51**	.42**	
5. Peer Relational T2	.05	.41**	.44**	.70**

Note. CARS = Children's Anger Rumination Scale; SBS-Overt = Social Behavioral Scale – Overt Aggression subscale; SBS-Relational = Social Behavioral Scale- Relational Aggression subscale; SBS-Total = Social Behavior Scale—Total Aggression score; Peer Overt = Peer-rated overt aggression; Peer Relational = Peer-rated relational aggression; Peer Total = Combined peer-rated overt and relational aggression

** $p < .01$.

Table 7

Hierarchical Regression Analyses Examining Concurrent Association Between Anger Rumination and Teacher Rated Overt and Relational Aggression at Time 1

Variable	B	SE B	β	ΔR^2
DV: SBS-Overt T1				
Step 1				.10***
Sex	-.07	.07	-.07	
Age	.00	.00	.19**	
T1 CARS	.01	.00	.25***	
Step 2				.03*
Sex	-.08	.07	-.07	
Age	-.00	.00	-.30	
T1 CARS	.02	.01	.45*	
T1 CARS X Age	-.16	.08	-.12	
T1 CARS X Sex	-.08	.07	-.22	
Sex X Age	.21	.13	.47	
Step3				.00
Sex	-.08	.07	-.07	
Age	-.00	.00	-.30	
T1 CARS	.02	.01	.45*	
T1 CARS X Age	-.17	.25	-.13	
T1 CARS X Sex	-.07	.07	-.22	
Sex X Age	.22	.13	.50	
T1 CARS X Sex X Age	.01	.18	.01	
DV: SBS-Relational T1				
Step 1				.07***
Sex	1.43	.63	.15*	
Age	.01	.01	.14*	
T1 CARS	.09	.02	.24***	
Step 2				.02
Sex	1.48	.64	.15*	
Age	-.03	.02	-.39	
T1 CARS	.10	.07	.26	
T1 CARS X Age	-1.3	.82	-.10	
T1 CARS X Sex	-.08	.65	-.02	
Sex X Age	2.25	1.26	.51	
Step3				.00
Sex	1.23	.66	.13	
Age	-.03	.02	-.31	
T1 CARS	.11	.08	.30	
T1 CARS X Age	1.41	2.46	.11	
T1 CARS X Sex	-.27	.67	-.09	
Sex X Age	1.95	1.29	.44	
T1 CARS X Sex X Age	-1.10	1.72	-.23	

Note. CARS = Children's Anger Rumination Scale; SBS-Overt = Social Behavior Scale-Overt Aggression subscale; SBS-Relational = Social Behavior Scale- Relational Aggression subscale

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

Table 8

Hierarchical Regression Analyses Examining Concurrent Association Between Anger Rumination and Peer Rated Overt and Relational Aggression at Time 1

Variable	B	SE B	β	ΔR^2
DV: Peer Overt T1				
Step 1				.20***
Sex	-.52	.12	-.27***	
Age	.00	.00	.21***	
T1 CARS	.02	.00	.23***	
Step 2				.01
Sex	-.52	.12	-.27***	
Age	-.00	.00	-.03	
T1 CARS	.04	.01	.49**	
T1 CARS X Age	-.00	.15	-.00	
T1 CARS X Sex	-.17	.12	-.26	
Sex X Age	.27	.23	.25	
Step3				.00
Sex	-.51	.12	-.27***	
Age	-.00	.00	-.04	
T1 CARS	.04	.01	.49*	
T1 CARS X Age	-.05	.46	-.02	
T1 CARS X Sex	-.17	.13	-.26	
Sex X Age	.22	.24	.26	
T1 CARS X Sex X Age	.03	.32	.02	
DV: Peer Relational T1				
Step 1				.14***
Sex	-.16	.12	-.08	
Age	.00	.00	.23***	
T1 CARS	.02	.01	.28***	
Step 2				.02
Sex	-.13	.13	-.07	
Age	-.01	.01	-.40	
T1 CARS	.03	.02	.38*	
T1 CARS X Age	-.05	.16	-.02	
T1 CARS X Sex	-.06	.13	-.09	
Sex X Age	.57	.25	.64*	
Step3				.00
Sex	-.12	.13	-.06	
Age	-.01	.01	-.41	
T1 CARS	.03	.02	.37	
T1 CARS X Age	-.14	.49	-.05	
T1 CARS X Sex	-.05	.13	-.08	
Sex X Age	.58	.25	.65*	
T1 CARS X Sex X Grade	.07	.34	.04	

Note. CARS = Children's Anger Rumination Scale; Peer-Overt = Peer-rated Overt Aggression; Peer-Relational = Peer-rated Relational Aggression

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

Table 9

Correlations Between Time 1 Anger Rumination and Time 2 Aggression Indices

	1	2	3	4
1. CARS T1				
2. SBS-Overt T2	.23**			
3. SBS- Relational T2	.16*	.73**		
4. Peer Overt T2	.27**	.51**	.42**	
5. Peer Relational T2	.15*	.41**	.44**	.69**

Note. CARS = Children's Anger Rumination Scale; SBS-Overt = Social Behavioral Scale – Overt Aggression subscale; SBS-Relational = Social Behavioral Scale- Relational Aggression subscale; SBS-Total = Social Behavior Scale—Total Aggression score; Peer Overt = Peer-rated overt aggression; Peer Relational = Peer-rated relational aggression; Peer Total = Combined peer-rated overt and relational aggression

* $p < .01$;

** $p < .05$.

Table 10

Time 1 CARS predicting change in aggression over time

Variable	B	SE B	B	R ²
<u>DV: SBS-Overt T2</u>				
T1 SBS-Overt	.40	.08	.35**	.16**
T1 CARS	.01	.00	.14*	
<u>DV: SBS-Relational T2</u>				
T1 SBS-Relational	.47	.08	.41**	.18**
T1 CARS	.04	.05	.09	
<u>DV: Peer-Overt T2</u>				
T1 Peer-Overt	.68	.04	.72**	.54**
T1 CARS	.00	.00	.05	
<u>DV: Peer-Relational T2</u>				
T1 Peer-Relational	.62	.05	.70**	.41**
T1 CARS	-.00	.00	-.03	

Note. CARS = Children's Anger Rumination Scale; SBS-Overt = Social Behavioral Scale – Overt Aggression subscale; SBS-Relational = Social Behavioral Scale- Relational Aggression subscale; Peer Overt = Peer-rated overt aggression; Peer Relational = Peer-rated relational aggression

* $p < .05$; ** $p < .001$.

Table 11

Hierarchical Regression Analyses with Anger Rumination Predicating Change in Peer-Rated Overt Aggression from Time 1 to Time 2

Variable	B	SE B	β	ΔR^2
DV: Peer Overt T2				.56***
Step 1				
Sex	-.01	.09	-.01	
Age	.00	.00	.07	
T1 Peer-Overt	.68	.05	.72***	
Step 2				
Sex	.00	.09	.00	.00
Age	.00	.00	.08	
T1 Peer-Overt	.67	.05	.71***	
T1 CARS	.00	.00	.06	
Step 3				
Sex	-.02	.09	-.01	.02*
Age	.00	.00	.02	
T1 Peer-Overt	.66	.05	.70***	
T1 CARS	.02	.01	.21	
T1 CARS X Age	-.30	.11	-.13**	
T1 CARS X Sex	-.11	.09	-.18	
Age X Sex	.02	.16	.03	
Step 4				
Sex	-.00	.09	.00	.01*
Age	-.00	.00	-.03	
T1 Peer-Overt	.66	.05	.71***	
T1 CARS	.01	.01	.18	
T1 CARS X Age	-.58	.32	-.25	
T1 CARS X Sex	-.09	.09	-.15	
Age X Sex	.05	.17	.07	
T1 CARS X Sex X Age	.20	.23	.13	

Note. CARS = Children's Anger Rumination Scale; Peer-Overt = Peer-rated Overt Aggression; Peer-Relational = Peer-rated Relational Aggression

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

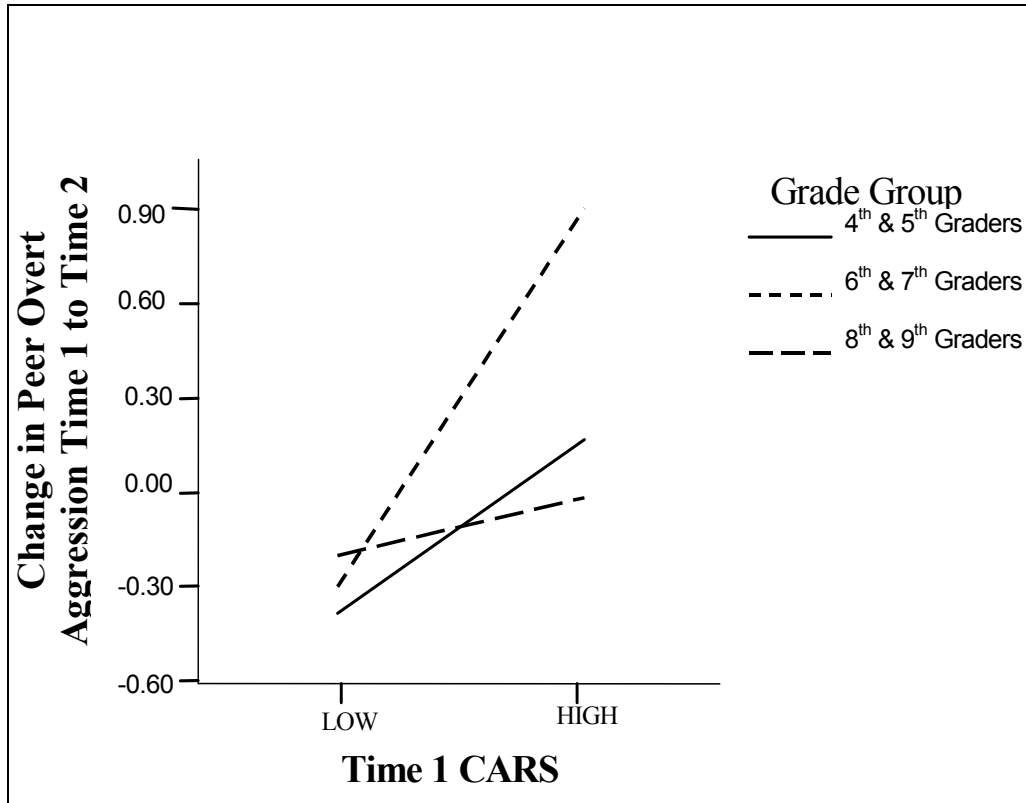


Figure 2. Interaction of Time 1 CARS and Age on the Change in Peer Overt Aggression from Time 1 to Time 2

CHAPTER 4

DISCUSSION

One theoretical focus for the development of psychopathology in childhood emphasizes the importance of emotional response styles—how children respond to and handle unpleasant emotion has been hypothesized to play a role in the development of such childhood problems as aggression and depression. One theory about the link between the way children process and regulate distressing emotion and the development of psychopathology focuses on the cognitive act of ruminating and is based on theoretical and empirical work by Nolen-Hoeksema (1987, 1991) on the Response Styles Theory, which posits that individuals' responses to sadness will affect their future level of depressive symptoms. Nolen-Hoeksema's original response styles theory has been empirically supported (in adult and child samples) and therefore, others, including Nolen-Hoeksema, have sought to extend the theory to include cognitive responses to other types of negative emotion and the potentially detrimental outcomes of these responses. Specifically, rumination to anger has been explored as a potential contributing variable to the development of aggression. Indeed, there is some support for the relationship between anger rumination and aggression in adulthood, though no study to date has been conducted using a child sample.

The primary purpose of the present study was to investigate the relationship between rumination to anger and aggression in a sample of school-age children. This study sought to extend downward the findings in the adult literature that a tendency to ruminate to anger is associated with an increase in aggressive behavior. When examined with cross-sectional analyses, there is some support for this hypothesis—at Time 1, anger rumination was significantly correlated with aggression. When examined longitudinally, a tendency to ruminate to anger was significantly predictive of an increase in teacher rated overt aggression and, for the 6th and 7th grade participants, was significantly predictive of an increase in peer-rated overt aggression.

Another goal of this study was to examine the role gender plays in our understanding of the interrelationship between rumination and maladaptive outcomes. Specifically, although it has been demonstrated empirically that adolescent girls and women ruminate to sadness more than adolescent boys and men, only one study that investigated sex differences in anger rumination

has been conducted, and the researchers in that study found the opposite pattern of results; men engaged in more rumination to anger than women. We therefore hypothesized that boys would score higher on measures of rumination to anger than girls. This hypothesis was partially supported: The boys' scores on the CARS at Time 1 were significantly greater than the girls'.

Finally, the reliability and validity of the measure of anger rumination was empirically evaluated to lay the foundation for the justification of using the CARS as an indicator of children's tendency to ruminate to angry emotions. The results of these analyses provided support for the use of the CARS and, along with the primary findings of this study, are further discussed in the following sections.

The Reliability and Validity of the CARS

Developing and testing theories of psychological phenomena is a complicated and multi-level process that often requires trial and error and "bootstrapping" before construct validity begins to take shape. At the most basic level of construct validity, the measures used to represent the constructs of interest must be reliable and valid in ways that are consistent with the theory. In this study, two constructs were theoretically linked: anger rumination was hypothesized to be positively predictive of aggression in a sample of school-age children. Although aggression has been studied extensively in children (and there are well-established methods of assessing aggression that have demonstrated both reliability and validity), anger rumination has not been studied in childhood to date and therefore there are no measures of anger rumination created for and validated on children. One purpose of the present study was to adapt and validate for use with a child sample a measure of adult anger rumination. The Anger Rumination Scale (ARS) was developed by Sukhodolsky, Golub and Cromwell (2001), and is a reliable and valid construct of anger rumination in adults. This study adapted the ARS into the Children's Anger Rumination Scale (CARS) by simplifying the language used in the directions and in the items, making it more developmentally appropriate.

Reliability and validity of the CARS were examined in this study by determining test-retest reliability, internal consistency, how the measure related to another measure of anger ruminations (convergent validity), and how it related to a measure of rumination to sadness (discriminant validity).

The CARS demonstrated adequate internal consistency and test-retest reliability, suggesting that the measure is a reliable measure. It should be noted, however, that while the test-retest reliability of the CARS was considered moderate to high compared to similar constructs within psychological research, it is relatively low compared to other, more stable constructs (e.g. ability estimates) and it cannot be determined whether the variability between scores at Time 1 vs. Time 2 is due to method error or actual change in anger rumination. The convergent validity of the CARS was evaluated by computing the correlation between the CARS and the second measure of anger rumination, the Children's Response to Hypothetical Angry Events Questionnaire (CRHAEQ). The CRHAEQ is a measure that was developed for this study as another measure of anger rumination—it was adapted from a children's measure of response styles to sadness and differs from the CARS in the way it asks children about their tendency to ruminate to anger. The CRHAEQ also demonstrated adequate internal consistency and test-retest reliability. It was expected that the CARS and CRHAEQ measures would correlate at a moderate to high rate because they are intended to measure the same construct. Consistent with the prediction, the correlations between these measures at Time 1 and Time 2 were positive and significant at a moderate level.

The discriminant validity of these measures was evaluated by computing the correlations between each measure and a measure of children's rumination to sadness (Children's Response Styles Scale). It was expected that there would be a low to moderate correlation between the CARS and the CRSS since, while these are distinct constructs, they likely overlap somewhat as there are likely children who ruminate as a general response to negative affective states. Somewhat in support of this hypothesis, the correlations between the Time 1 measure of anger rumination (CARS) and rumination to sadness were lower than the correlations between the two Time 1 measures of anger rumination, however, they were not as low what was predicted, and the Time 2 patterns of correlations were opposite of what was hypothesized. One possible explanation for this lack of discriminant validity is the similarity of the structure of the CARS and the CRSS—perhaps the shared method variance is what accounts for the higher correlations between these measures than between the CARS and the CRHAEQ. Another possible explanation for the high correlation between the CARS and the CRSS is that rumination may be a cognitive response style to negative affect in general—perhaps those children who ruminate to anger also ruminate to sadness and other negative emotions. Or, perhaps there are subgroups of “ruminators” – some children may have a more pervasive general ruminative response style,

while others may have ruminative responding to one specific negative emotion. Though no empirical studies have been conducted to test the specificity vs. generalization of rumination, some recent research has begun to explore the nature of the overlap of these constructs. In a study by Gilbert, Cheung, Irons and McEwan (2005), undergraduate students were assessed for their tendency to ruminate to anger and sadness as well as their depressive symptoms. These researchers found that rumination to anger and rumination to sadness were found to be related to increased depressive symptoms, and that these symptoms were more severe for the students who ruminated to both depressive and angry affect, suggesting that ruminative response styles may be both general and specific and that outcomes may be worse for individuals who have a general ruminative response style (Gilbert, Cheung, Irons and McEwan, 2005).

Another aspect of the validity of the CARS that was explored was whether or not there were developmental differences or sex differences in the reliability and validity of the measure. The reliability and validity analyses were conducted separately by age group and sex and the internal consistency, test-retest reliability and pattern of convergent and discriminant validity coefficients, were similar across sex and age groups.

Whether or not there were developmental differences on the self-reported tendency to ruminate to anger was also a question of interest in this study. Although no predictions were made about the main effect of age on the CARS, an ANOVA and Post hoc comparisons revealed that the youngest participants (4th/5th graders at Time 2 data collection) reported significantly more anger rumination on the Time 1 and Time 2 CARS than the 6th/7th graders and the 8th/9th graders (who did not differ significantly from one another). It is unclear why the younger children reported more anger rumination; perhaps younger children have yet to develop coping strategies to deal with their thoughts of anger and this leads them to think about people and situations that make them angry more than older children. One other possible explanation for this finding is that younger children may have had difficulty responding to a Likert rating scale—however, there were no age differences in the CARS' descriptive statistics and reliability coefficients suggesting that this finding was unlikely due to a developmental difference in ability to complete the questionnaire.

Sex Differences in the Tendency to Ruminates to Anger

Although no study to date has directly examined gender differences in the tendency to ruminate to anger, several related studies suggest that boys would be more likely to ruminate to anger than girls. Studies with adult samples fairly consistently find that men report and show more anger rumination than women (Rusting and Nolen-Hoeksema, 1998; Linden et al., 2003). In studies of children's responses to anger-inducing and frustrating events, sex differences in behavioral expression have been demonstrated; boys tend to show more anger and girls tend to show more sadness when frustrated or rejected (Underwood, Hurley, Johanson and Mosley, 1999; Bonhert, Crnic & Lim, 2003). Given these findings from previous studies, it was hypothesized that boys would report more anger rumination than girls. This hypothesis was partially supported: Boys reported significantly more anger rumination than girls on the Time 1 CARS but not the Time 2 CARS. This pattern was generally similar across age groups: 6th/7th and 8th/9th grade boys reported significantly more anger rumination than girls on the Time 1 CARS but not the Time 2 CARS, and the 4th and 5th grade girls and boys did not report significantly different levels of anger rumination on the CARS at Time 1 or Time 2. It is difficult to speculate about this pattern of results—on the one hand it seems that the hypothesized sex differences emerged for the older children in the study, which would suggest that perhaps the sex difference is moderated by developmental level. However, the same pattern of results were not found for the Time 2 CARS, and since the Time 2 cohort was older (4th - 9th graders vs. 2nd-7th graders at Time 1), the theory that the sex difference in the tendency to ruminate to anger is moderated by age would have only been supported if the Time 2 CARS showed sex differences across age groups. It is possible that there is some problem with the Time 2 CARS (see section on limitation for further discussion).

Concurrent and Predictive Relationship Between Anger Rumination and Aggression

The primary purpose of this study was to determine if anger rumination is significantly related to aggression. The longitudinal design of the study permitted both concurrent and predictive analyses of this relationship. Aggression was indexed with four measures of aggression—1) Teacher reported overt aggression, 2) Teacher reported relational aggression, 3) Peer reported overt aggression and 4) Peer reported relational aggression. Concurrent

correlations between anger rumination and the indices of aggression partially supported the hypothesis; Time 1 anger rumination was significantly correlated with each of the measures of aggression at Time 1. There were no moderating effects age or sex on the concurrent correlation between CARS and aggression.

In addition to the prediction that anger rumination and aggression would be concurrently correlated, the third hypothesis of this study predicted that an initial tendency to ruminate to anger would predict an increase of aggression over time. To evaluate the third hypothesis, a series of regression analyses, using each of the four aggression indices, were run where Time 2 aggression was the dependent variable, Time 1 aggression was controlled by entering it into the first step of the regression analyses, and Time 1 CARS was the independent variable. The results of the predictive analyses revealed that Time 1 CARS predicted an increase in overt aggression over time as reported by teachers and peers. Specifically, T1 CARS significantly predicted change in teacher rated overt aggression: Children who reported more anger rumination at Time 1 became more overtly aggressive over time as rated by their teachers. In addition, an increase in peer rated overt aggression was significantly predicted by an interaction between Time 1 CARS and age, suggesting that age moderates the relationship between Time 1 CARS and change in peer rated overt aggression. Follow up analyses suggested that, although higher scores on the Time 1 CARS was not related to an increase in peer rated overt aggression for the whole sample, this relationship was stronger for the 6th and 7th grade participants. In contrast to the significant predictive relationship between Time 1 CARS and teacher and peer rated overt aggression, Time 1 CARS did not predict changes in teacher or peer rated relational aggression over time.

The results of the predictive analyses offer modest support for the hypothesis that children who report a tendency to ruminate about people and events that anger them will become more aggressive over time. However, this is only true for overt aggression—there was no support for anger rumination contributing to increased relational aggression. Perhaps relational and overt aggression are differentially affected by one's response to anger. In fact, relationally aggressive behaviors (especially as assessed in this study) are typically more targeted and planned than many of the overtly aggressive behaviors, which are often impulsive and not always aimed at one other individual or even the individual who may have made them angry. For example, one of the items on the relational aggression measure completed by the participants about their classmates asks them to identify peers that “try to make other kids not like a certain person by spreading rumors about them,” which is contrasted with one of the overt aggression items, “hits, kicks or

punches others.” The items differ in the amount of planning inherent in the aggressive behavior as well as the target of the behavior. This explanation is consistent with the findings in a study by Bushman et al (2005), which found that a ruminative response style caused participants to react to a minor provocation with displaced aggression—their aggressive responding was not linked to the actual provocation. Perhaps a ruminative response style primes people for a hostile attribution bias, which, in turn, causes them to impulsively behave overtly aggressively but does not affect relational aggression in the same way.

Limitations and Future Directions

This is the first study to examine the construct of anger rumination in childhood and to explore its relationship with aggression and, despite its contributions, there are a number of limitations and potential areas of further examination which would enhance the understanding of these constructs in childhood. First, although the measure of anger rumination used in this study to validate the CARS differed in the way it asked children to report their tendency to ruminate to their anger, both were self-report questionnaires and are therefore subject to similar method bias. Utilizing additional measures of anger rumination (e.g. information from parents about how their child appears to cope with anger, recording participants’ responses to a frustrating task) to validate the paper and pencil questionnaires would strengthen anger rumination’s nomological network. Similarly, additional information about the plausibility of anger rumination’s causal link to aggression could be garnered by designing an experiment, similar to the studies conducted with adult participants by Rusting and Nolen-Hoeksema (1998) and Bushman (2002), in which children would be exposed to an anger-evoking event in a lab setting and then told to ruminate or distract, and then measuring their level of anger and aggression.

Second, future research should evaluate the role that anger rumination plays in clinical samples of children as opposed to the community-based sample in this study. It is possible that a larger effect of anger rumination on aggression would be seen in a sample of children exhibiting clinically significant levels of aggression.

Third, it is possible, even likely, that anger rumination is related to other constructs in ways that would influence aggression, and these other potential moderators should be included in future studies examining anger rumination’s link to aggression. For example, impairment in executive functioning and impulsivity are both related to aggression in childhood: Children who

are diagnosed with AD/HD have a 50% chance of also having co-occurring aggression (Anderson, Williams, McGee & Silva, 1987; Szatmari, Boyle, Offord, 1989) and children who are rated as “more angry” and behave more reactively aggressive (as opposed to proactively aggressive) typically have more problems with impulsivity than controls (Dodge, 1991; Dodge & Somberg, 1987). Perhaps impulsivity moderates the relationship between anger rumination and aggression, and perhaps fewer children with relational aggression struggle with impulsivity.

Fourth, given that anger rumination in this study was significantly correlated with measures of rumination to sadness, it is possible that rumination is a general response style to negative affect. Perhaps children who ruminate do so to all of their unpleasant emotion. Future studies of response styles should explore this possibility by examining the relationship between rumination to a variety of negative affective states (anxious, sad, angry, etc.) with other internalizing and externalizing outcome variables (e.g. anxiety, depression, oppositional/defiant behaviors). It should be noted that in this study, an attempt to support the hypothesis of a specific relationship between anger rumination and aggression was made when children’s tendency to ruminate to sadness was included as a covariate in the regression analyses examining anger rumination and aggression. In general, holding constant rumination to sadness in these analyses did not modify the relationship between anger rumination and aggression at Time 1 and rumination to sadness was not concurrently related to aggression at either Time 1 or Time 2. However, more empirical work examining the overlap of these constructs is needed.

Finally, the Time 2 CARS differs in several unexpected and potentially problematic ways from the Time 1 CARS: The sex differences in Anger Rumination found at Time 1 were not found at Time 2 and the concurrent relationship found between the Time 1 CARS and aggression measures did not hold at Time 2 (though the overall patterns were the same). It is possible that a measurement and/or a data collection anomaly is responsible for these unexpected findings, however, the data was checked and re-checked for coding and data entry accuracy and no problems were identified.

These discrepancies are puzzling and one possible explanation is that there was a significant within-subject decrease in mean self-reported anger rumination from Time 1 to Time 2, as well as a decrease in between subjects CARS variance from T1 and T2. Children who’s T1 CARS scores were greater than one standard deviation above the sample mean showed a greater decrease in anger rumination from T1 to T2 (though the aggression measures demonstrated stronger longitudinal stability), and perhaps this altered the patterns of relationships between the

Time 2 variables. It is possible that this is due to a measurement effect. In fact, a meta analytic study by Twenge and Nolen-Hoeksema (2002) described a similar confound with the Children's Depression Inventory (CDI)—although cross-sectional studies report an increase in CDI means as children age, longitudinal studies consistently show a decrease in CDI scores over multiple administrations (regardless of the time between administrations). These researchers report that this is not unique to the CDI, rather, other self-report measures of negative affect in childhood are also susceptible to this effect. To combat this, Twenge and Nolen-Hoeksema (2002) suggest using other methods of assessment and strongly encouraging research teams and participants to not become complacent while completing measures—even if it is the second or third time they have completed the same measures.

Conclusions

This is the first empirical examination of the construct of anger rumination in childhood and the first attempt to empirically demonstrate its link to aggression. The results of this study suggest that anger rumination can be reliably assessed in childhood via a self-report questionnaire adapted from a similar measure previously used in studies of anger rumination in adulthood. In addition, there were mixed results regarding sex difference in the tendency to ruminate to anger—boys reported more anger rumination than girls on the Time 1 data anger rumination measure but not on the Time 2 measures. This study sought to test the hypothesis that anger rumination was concurrently related with and predictive over time of increased aggression. The results offered some support for the concurrent relationship --Time 1 anger rumination was significantly positively correlated with Time 1 aggression. Anger rumination did not predict change in relational aggression, however, it predicted an increase in teacher rated overt aggression for the whole sample and an increase in peer rated overt aggression for the 6th and 7th grade participants. Further research is needed to determine the robustness of the relationship between anger rumination and aggression as well as further explore potential moderating variables of this relationship.

APPENDIX A

HUMAN SUBJECT COMMITTEE APPROVAL



Office of the Vice President for Research
Tallahassee, Florida 32306-2763
(850) 644-5260 .FAX (850) 644-4392

APPROVAL MEMORANDUM from the Human Subjects Committee

Date: September 4, 2002

From: David Quadagno, Chair

To: *Kimberly Driscoll Dept: Psychology*

Re: Use of Human subjects in Research

Project entitled: *Gender Differences in Childhood and Adolescent Depression*

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Human Subjects Committee at its meeting on August 8, 2002. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If the project has not been completed by August 7 2003, you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRBOOOOO446.

APPLICATION NO. 02.397 Cc: J. Kistner

APPENDIX B

INFORMED CONSENT—PARENT FORM

Informed Consent Form

Project Title: Gender Differences in Childhood and Adolescent Depression
Investigators: Kimberly Driscoll, M.S.; Janet Kistner, Ph.D.
Telephone: (850) 644-2040

The purpose of this study is to learn more about gender differences in childhood and adolescent depression. Depression not only impacts a child's well-being during childhood, but it is also a risk factor for experiencing depression later in life. Children who are depressed are more likely to experience more severe depressive symptoms when they are older compared to children who are not depressed. Children experience the same rates of depression in childhood; however, during early adolescence, the rates of depression in girls exceed that which is experienced by boys. The shift in rates of depression is not well understood. We are inviting children ages 8 – 17 at your child's school to participate in this study because we are interested in exploring the factors that may account for the gender differences in depression. We feel that the information obtained in this study will make a valuable contribution to our understanding of depression in children and adolescents, which will enable us to implement more effective ways of preventing depression in children and adolescence.

Your child's participation will involve completing a series of questionnaires that will be administered in three sessions. The first session will take place in October, the second in April, and the third the following October. Each session will last approximately 40 to 60 minutes. The questionnaires will ask whether the children experience depressive symptoms, how they cope with sad and angry feelings, and the types of difficulties they face in their lives. At the beginning of each session, and prior to the administration of the questionnaires, your child's permission will be obtained. It will be made clear to your child that he/she has the right to withdraw from the study at any time. We will also ask your child's teacher to complete questionnaires about your child's behavior in the classroom.

All information collected will be strictly confidential, to the extent allowed by law. No individual child or family will ever be identified publicly. Names are removed from all information gathered on your child and replaced with identification numbers. The information obtained from this study will be kept in a locked file storage area and will not be released to your child's school or to any other person in a way that would reveal the identity of your child. The link between your child's name and his/her identification number will be kept in a separate location from the actual data. This link will be destroyed within two years of data collection, as is routinely done with the materials gathered in the research laboratory. In public reports of results of this study to your child's school or in professional communications, results that have been averaged over large numbers of children are reported in a way that insures the anonymity of all participants.

Your child's participation is completely voluntary. If you do not give permission for your child to participate, or if your child does not want to participate once you have consented to his/her participation, it will not affect his/her grades. Similarly, your child or you may change your minds about participating in the study, in which case you may withdraw at any time. There are no foreseeable risks or discomforts if you agree to your child's participation in this study. If based on your child's responses to the questionnaires he/she appears to be experiencing severe depressive symptoms, Ms. Driscoll will talk to your child and assess the severity of the symptoms verbally. Dr. Kistner, the clinical psychologist supervising this study, will be consulted as well. If discussion with your child confirms he/she is truly experiencing severe depressive symptoms, you will be informed and provided with recommendations for professional help for your child.

Although there may be no direct benefits to your child, the possible benefit to your child's participation in this research study is that the information that is gathered will help us better understand depression as it

occurs in some children. This will inform us regarding effective ways to intervene and prevent depression in children, thus helping them to have better lives.

Any questions that you have concerning the research study or your child's participation in it, before or after your consent, will be answered by Kim Driscoll. Please leave a message for her at 850-644-2040, and your call will be returned as soon as possible. If you have any questions about your child's or your rights as participants in this research, you can contact the Chair of the Human Subjects committee at Florida State University, Institutional Review Board, through the office of the Vice President for Research, at (850) 644-8633. A description of the group findings from this study will be sent to you upon your request.

If you agree to allow your child to participate in this study, please sign and print your name and the name of your child. You may withdraw your consent and discontinue your child's participation at any time without penalty. By signing this consent form, you are not waiving any legal claims, rights, or remedies. Your signature below indicates that you have read this consent form and that you have decided to allow your child to participate. A copy of this consent form will be offered to you upon your request.

Child's Name: _____ Child's Date of Birth: _____

Child's Teacher's Name: _____

Parent/Guardian Name: _____ Date: _____

I PERMIT MY CHILD TO PARTICIPATE: _____
Parent/Guardian Signature

I DO NOT PERMIT MY CHILD TO PARTICIPATE: _____
Parent/Guardian Signature

I WOULD LIKE TO KNOW ABOUT THE GROUP RESULTS OF THIS RESEARCH PROJECT.
PLEASE...

____ Mail a written summary of the group results at:

____ Call me to discuss the group results of the study and answer my questions. My telephone number is: _____

____ Meet with me in person to discuss the group results of the study and answer my questions. My telephone number is (Kim Driscoll will call you to set up an appointment): _____

APPENDIX C
CHILD ASSENT FORM

Child Assent Form

I have been told that my parent(s) have given permission for me to participate, if I want to, in a project about children's responses to their sad and angry moods. This project is being run by Karla Repper, a graduate student under the direction of Dr. Janet Kistner in the Department of Psychology at Florida State University. For the project, I will be answering some questions. The things I write down will be private. No one will tell the teachers or the other kids. I understand that I don't have to answer any questions if I don't want to and that I can stop participating in this study at any time. If I choose not to participate, I won't get into trouble and it won't affect my grades in any way. If I feel sad or upset about any of the questions that I answer, I can talk to Mrs. Repper or any of her assistants. If I have any questions, I can ask my parents or have them call Mrs. Repper or Dr. Kistner at (850) 644 - 6828.

Name: _____

Date: _____

APPENDIX D
CHILDREN ANGER RUMINATION SCALE

Children's Anger Rumination Scale

Kids think and do many different things when they feel angry. We want to know HOW OFTEN you think or do a number of things when you're feeling this way. Please read each of the items below and circle a number to show how often you think or do each one when you feel angry. We don't want to know what you think and do just any time, we want to know what you think and do only when you're feeling angry. Please mark what you USUALLY think or do when you're angry, not what you think you should think or do.

1. I think a lot about other times when I was angry.
1-----2-----3-----4
almost never almost always

2. I think about the bad things that I didn't deserve that have been done to me.
1-----2-----3-----4
almost never almost always

3. I keep thinking about events that angered me for a long time.
1-----2-----3-----4
almost never almost always

4. I have long living fantasies of revenge after the conflict is over.
1-----2-----3-----4
almost never almost always

5. I think about certain events from a long time ago and they still make me angry.
1-----2-----3-----4
almost never almost always

6. I have difficulty forgiving people who have hurt me.
1-----2-----3-----4
almost never almost always

7. After an argument is over, I keep fighting with this person in my mind.
 1-----2-----3-----4
 almost never almost always
8. Memories of being angry pop up into my head before I fall asleep.
 1-----2-----3-----4
 almost never almost always
9. Whenever I experience anger, I keep thinking about it for a while.
 1-----2-----3-----4
 almost never almost always
10. I have had times when I could not stop thinking about a particular conflict.
 1-----2-----3-----4
 almost never almost always
11. I try to figure out what makes me angry.
 1-----2-----3-----4
 almost never almost always
12. I think about the reasons people treat me badly.
 1-----2-----3-----4
 almost never almost always
13. I have day dreams and fantasies that are violent.
 1-----2-----3-----4
 almost never almost always
14. I feel angry about certain things in my life.
 1-----2-----3-----4
 almost never almost always

15. When someone makes me angry I can't stop thinking about how to get back at this person.

1-----2-----3-----4
almost never almost always

16. When someone makes my angry, I keep wondering why this happened to me

1-----2-----3-----4
almost never almost always

17. Memories of even minor problems bother me for a while.

1-----2-----3-----4
almost never almost always

18. When something makes me angry, I turn this matter over and over again in my mind.

1-----2-----3-----4
almost never almost always

19. I replay what made me angry over and over after it happened.

1-----2-----3-----4
almost never almost always

APPENDIX E
CHILDRENS RESPONSE TO HYPOTHETICAL ANGRY EVENTS QUESTIONNAIRE

Children's Responses to Hypothetical Angry Events Questionnaire

Pretend that you are walking down the hall. The school bully knocks your books out of your hands. Your teacher thought you knocked the books out of the bully's hands. The teacher gives you a detention!

Which one is more like you? (Check the box that is most like you.)

1. When they are punished for something they didn't do, some kids think about it again and again.

not really true for me sort of true for me really true for me

2. Some kids do something else that's fun to get their mind off it.

not really true for me sort of true for me really true for me

3. Some kids can't get their thoughts away from thinking about it.

not really true for me sort of true for me really true for me

4. Some kids just forget about it and think about other things.

not really true for me sort of true for me really true for me

Pretend that it is a hot summer day and you are at the pool with your friends. You are having a lot of fun. You and your friend are standing at the edge of the pool when your friend falls into the water. The lifeguard thought that you were pushed your friend into the pool, which is against the rules. The lifeguard sends you home without letting you explain what happened.

Which one is more like you? (Check the box that is most like you.)

1. When they are accused of something they didn't do, some kids think about it again and again.

not really true for me sort of true for me really true for me

2. Some kids do something else that's fun to get their mind off it.

not really true for me sort of true for me really true for me

3. Some kids can't get their thoughts away from thinking about it.

not really true for me sort of true for me really true for me

4. Some kids just forget about it and think about other things.

not really true for me sort of true for me really true for me

Pretend you have saved your allowance for eight weeks. You buy a new toy with your saved money. Later that night, one of the kids in your neighborhood breaks your new toy. Your parents won't buy you a new one. They tell you to start saving your allowance again.

Which one is more like you? (Check the box that is most like you.)

1. When others break their toys, some kids think about it again and again.

not really true for me sort of true for me really true for me

2. Some kids do something else that's fun to get their mind off it.

not really true for me sort of true for me really true for me

3. Some kids can't get their thoughts away from thinking about it.

not really true for me sort of true for me really true for me

4. Some kids just forget about it and think about other things.

not really true for me sort of true for me really true for me

Pretend your favorite tv show is coming on in five minutes. Your parents tell you to turn off the tv and do your homework. You ask if you can do your homework after the show. Your parents say no. You miss one of the best shows of the year!

Which one is more like you? (Check the box that is most like you.)

1. When they don't get their way, some kids think about it again and again.

not really true for me sort of true for me really true for me

2. Some kids do something else that's fun to get their mind off it.

not really true for me sort of true for me really true for me

3. Some kids can't get their thoughts away from thinking about it.

not really true for me sort of true for me really true for me

4. Some kids just forget about it and think about other things.

not really true for me sort of true for me really true for me

APPENDIX F

CHILDRENS RESPONSE STYLE SCALE

Children's Response Style Scale

Kids think and do many different things when they feel sad. We want to know HOW OFTEN you think or do a number of things when you're feeling this way. Please read each of the items below and circle a number to show how often you think or do each one when you feel sad. We don't want to know what you think and do just any time, we want to know what you think and do only when you're feeling sad. Please mark what you USUALLY think or do when you're sad, not what you think you should think or do.

1. When I'm sad, I think back to other times when I felt this way.

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Never Always

2. I think about how I should have done something different.

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Never Always

3. I think about something I did a little while ago that was a lot of fun.

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Never Always

4. I go away by myself and think about why I feel this way.

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Never Always

5. I do something I really like to do.

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Never Always

6. I think, "I'll concentrate on something other than how I feel."

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Never Always

7. I go someplace alone to think about my feelings.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
8. I think, "Why can't I stop feeling this way?"
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
9. I think, "I'm going to do something to make myself feel better."
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
10. I do something that has made me feel better in the past.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
11. I think about all the other times things didn't go the way I wanted them to.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
12. I think about fun things.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
13. I think about what made me feel like this.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always

14. I concentrate on something else that makes me happier.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
15. I try to take my mind off my feelings by doing something I like.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
16. I replay in my head what happened.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
17. I think, "I'm going to go out and have some fun."
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
18. I think about a time when I was feeling much happier.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
19. I think about my feelings.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always
20. I think about something that just happened, wishing it had gone better.
- 0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10
 Never Always

APPENDIX G

PEER NOMIANTIONS FOR AGGRESSIVE BEHAVIOR

Peer Nominations for Aggressive Behavior

Circle the names of three classmates who are listed below who you think fit the statement:

INSERT NOMINATION ITEM

Name

Name

Name

Name

Name

Name

Overt Aggression Nomination Items:

1. Hits, kicks, punches others.
2. Says mean things to insult others or put them down.
3. Pushes and shoves others.
4. Tells other kids that they will beat them up unless the kids do what they say.
5. Calls others mean names.

Relational Aggression Nomination Items:

1. Tries to make other kids not like a certain person by spreading rumors about them.
2. When mad at a person, gets even by keeping the person from being in their group of friends.
3. When mad at a person, ignores them or stops talking to them.
4. Tells friends they will stop liking them unless friends do what they say.
5. Tries to keep a certain person from being in their group during activity or play time.

APPENDIX H
CHILDREN'S SOCIAL BEHAVIOR SCALE – TEACHER FORM

Children's Social Behavior Scale – Teacher Form

Please indicate how true the following statements are about the student in your class.

Child's Name: _____

Circle one number for each item.

	Never True	Rarely True	Some times True	Often True	Almost Always True
1. When this child is mad at a peer, he or she gets even by excluding the peer from his or her clique or peer group	1	2	3	4	5
2. This child spreads rumors or gossips about some peers.....	1	2	3	4	5
3. This child says supportive things to peer.....	1	2	3	4	5
4. This child hits, shoves, or pushes peers.....	1	2	3	4	5
5. When angry at a peer, this child tries to get other children to stop playing with the peer or to stop liking the peer.....	1	2	3	4	5
6. This child initiates or gets into physical fights with peers.....	1	2	3	4	5
7. This child is helpful to peers.....	1	2	3	4	5
8. This child tries to get others to dislike certain peers by telling lies about the peers to others.....	1	2	3	4	5
9. This child threatens to hit or beat up other children.....	1	2	3	4	5
10. This child tries to exclude certain peers from peer group activities...	1	2	3	4	5
11. This child threatens to stop being a peer's friend in order to hurt the peer or to get what she or he wants from the peer.....	1	2	3	4	5
12. This child is kind to peers.....	1	2	3	4	5
13. When mad at a peer, this child ignores the peer or stops talking to the peer.....	1	2	3	4	5
14. This child tries to dominate or bully peers.....	1	2	3	4	5
15. This child tries to cheer up peers when they are sad or upset about something.....	1	2	3	4	5

REFERENCES

- Abikoff, H., & Klein, R. G. (1992). Attention-deficit hyperactivity and conduct disorder: Comorbidity and implications for treatment. *Journal of Consulting and Clinical Psychology, 60*, 881-892.
- Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology, 53*, 27-51.
- Anderson, J. C., Williams, S., McGee, R., & Silva, P. A. (1987). DSM-III disorders in preadolescent children: Prevalence in a large sample from the general population. *Archives of General Psychiatry, 44*, 69-76.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Berkowitz, L. (1993). *Aggression: Its causes, consequences, and control*. New York, NY: McGraw-Hill.
- Blanchard-Fields, F., Sulsky, L., & Robinson-Whelen, S. (1991). Moderating effects of age and context on the relationship between gender, sex role differences, and coping. *Sex Roles, 25*, 645-660.
- Bohnert, A. M., Crnic, K. A., & Lim, K. G., (2003). Emotional competence and aggressive behavior in school-age children. *Journal of Abnormal Child Psychology, 31*, 79-91.
- Broderick, P. C. (1998). Early adolescent gender differences in the use of ruminative and distracting coping strategies. *Journal of Early Adolescence, 18*, 173-191.
- Bushman, B., Bonacci, A., Pederson, W., Vasquez, E., & Miller, N. (2005). Chewing on it can chew you up: Effects of rumination on triggered displaced aggression. *Journal of Personality and Social Psychology, 88*, 969-983.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267-283.
- Coie, J. D., & Dodge, K. A. (1983). Continuities and changes in children's social status: A five-year longitudinal study. *Merrill-Palmer Quarterly, 29*, 261-281.
- Cole, P. (1986). Children's spontaneous expressive control of facial expression. *Child Development, 57*, 1309-1321.

- Collins, K., & Bell, R. (1997). Personality and Aggression: The dissipation-rumination scale. *Personality and Individual Differences, 22*, 751-755.
- Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development, 67*, 2317-2327.
- Crick, N. R., Casas, J. F., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology, 33*, 579-588.
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender and social- psychological adjustment. *Child Development, 66*, 710-722.
- Crick, N. R., Grotpeter, J. K., & Bigbee, M. A. (2002). Relationally and physically aggressive children's intent attributions and feelings of distress for relational and instrumental peer provocations. *Child Development, 73*, 1134-1142.
- Crick, N. R., & Werner, N. E. (1998). Response decision processes in relational and overt aggression. *Child Development, 69*, 1630-1639.
- Dearing, K. F., Hubbard, J. A., Ramsden, S. R., Parker, E. H., Relyea, N, Smithmyer, C. M., & Flanagan, K. D. (2002). Children's self-reports about anger regulation: Direct and Indirect links to social preference and aggression. *Merrill Palmer Quarterly, 48*, 308-336.
- Denham, S. A., McKinley, M., Couchoud, E. A., & Holt, R. (1990). Emotional and behavioral predictors of preschool ratings. *Child Development, 61*, 1145-1152.
- Dodge, K. A., & Coie, J. D. (1987). Social-information processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53*, 1146-1158.
- Dodge, K. A. (1991). The structure and function of reactive and proactive aggression. In D. J. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 201-218). Hillsdale, NJ: Lawrence Erlbaum.
- Dodge, K. A., & Somberg, D. R. (1987). Hostile attributional biases among aggressive boys are exacerbated under conditions of threats to the self. *Child Development, 58*, 213-224.
- Eisenberg, N., & Fabes, R. A. (1999). Emotion, emotion-related regulation, and the quality of socioemotional functioning. In L. Balter & C. S. Tamis-LeMonda (Eds.), *Child Psychology: A handbook of contemporary issues* (pp. 318-335). Philadelphia: Psychology Press/Taylor & Francis.
- Griffin, R. S., & Gross, A. M. (2004). Childhood bullying: Current empirical findings and future directions for research. *Aggression and Violent Behavior, 9*, 379-400.

- Hubbard, J. A. (2001). Emotion expression processes in children's peer interaction: The role of peer rejection, aggression and gender. *Child Development, 72*, 1426-1438.
- Just, N., & Alloy, L. B. (1997). The response styles theory of depression: Tests and extension of the theory. *Journal of Abnormal Psychology, 106*, 221-229.
- Kovacs, M. (1985). The children's depression inventory. *Psychopharmacology Bulletin, 21*, 995-998.
- Kupersmidt, J. B., & Coie, J. D. (1990). Preadolescent peer status aggression and school adjustment as predictors of externalizing problems in adolescence. *Child Development, 61*, 1350-1362.
- Lahey, B. B., Miller, T. L., Schwab-Stone, M., Goodman, S. H., Waldman, I. D., Canino, G., Rathouz, P. J., Dennis, K. D., Bird, H., & Jensen, P. S. (2000). Age and gender differences in oppositional behavior and conduct problems: A cross-sectional household study of middle childhood and adolescence. *Journal of Abnormal Psychology, 109*, 488-503.
- Linden, W., Hogan, B. E., Rutledge, T., Chawla, A., Lenz, J. W., & Leung, D. (2003). There is more to anger coping than "in" or "out". *Emotion, 3*, 12-29.
- Lyubomirsky, S., & Nolen-Hoeksema, S. (1995). Effects of self-focused rumination of negative thinking and interpersonal problem solving. *Journal of Personality and Social Psychology, 69*, 176-190.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1*, 130-149.
- Nolen-Hoeksema, S., Grayson, C., & Larson, J. (1999). Explaining the gender differences in depressive symptoms. *Journal of Personality and Social Psychology, 77*, 1061-1072.
- Nolen-Hoeksema, S., Parker, L. E., & Larson, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality and Social Psychology, 67*, 92-104.
- Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin, 102*, 357-389.
- Pepler, D. J., Craig, W. M., Zeigler, S., & Charach, A. (1994). An evaluation of an anti-bullying intervention in Toronto Schools. *Canadian Journal of Community Mental Health, 13*, 95-110.
- Rusting, C. L., & Nolen-Hoeksema, S. (1998). Regulating responses to anger: Effects of rumination and distraction on angry mood. *Journal of Personality and Social Psychology, 74*, 790-803.

- Roberts, J. E., Gilboa, E., & Gotlib, I. H. (1998). Ruminative response style and vulnerability to episodes of dysphoria: Gender, neuroticism, and episode duration. *Cognitive Therapy and Research, 22*, 401-423.
- Saarni, C. (1999). *The development of emotional competence*. New York: Guildford Press.
- Schwartz, J. A., & Koenig, L. J. (1996). Response styles and negative affect among adolescents. *Cognitive Therapy and Research, 20*, 13-36.
- Shields, A., & Cicchetti, D. (1998). Reactive Aggression among maltreated children: the contributions of attention and emotion dysregulation. *Journal of Clinical Child Psychology, 27*, 381-395.
- Sukhodolsky, D. G., Golub, A., & Cromwell, E. N. (2001). Development and validation of the anger rumination scale. *Personality and Individual Differences, 31*, 689-700.
- Sukhodolsky, D. G., Kassinove, H., & Gorman, B. S. (2004). Cognitive-behavioral therapy for anger in children and adolescents: A meta-analysis. *Aggression and Violent Behavior, 9*, 247-269.
- Szatmari, P., Boyle, M., & Offord, D. R. (1989). ADHD and Conduct Disorder: Degree of diagnostic overlap and differences among correlates. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 865-872.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics- Fourth Edition*. Needham Heights, MA: Allyn & Bacon.
- Thompson, R. A. (1994). Emotion Regulation: A theme in search of definition. In N. A. Fox (Ed.), *The development of emotion regulation: Biological and behavioral considerations. Monographs of the Society for Research in Child Development, 59*, 25-52.
- Twenge, J. M., & Nolen-Hoeksema, S. (2002). Age, gender, race, socioeconomic status, and birth cohort differences on the Children's Depression Inventory: A meta-analysis. *Journal of Abnormal Psychology, 111*, 578-588.
- Underwood, M. K., Hurley, J. C., Johanson, C. A., & Mosley, J. (1999). An experimental, observational investigation of children's responses to peer provocation: Developmental and gender differences in middle childhood. *Child Development, 70*, 1428-1446.
- Ziegert, D. I., & Kistner, J. A. (2001). Response Styles Theory: Downward extension to children. *Journal of Clinical Child and Adolescent Psychology, 31*, 325-334.

BIOGRAPHICAL SKETCH

Karla Kronquist Repper

GRADUATE EDUCATION:

2005- Present University of Miami/Jackson Memorial Medical Center
Pre-doctoral Intern- Clinical Child Track

2000-2005 Florida State University, Tallahassee, FL

2003 Doctoral Candidate, Clinical Psychology

Dissertation: Anger Rumination and its Relationship to Childhood Aggression.

Prospectus Defended: October, 2004

Dissertation Defense: June, 2006

Professor Directing Dissertation: Janet A. Kistner, Ph.D.

2002 Master of Science, Clinical Psychology

Masters Thesis: Profiles of Social Dysfunction in Children Diagnosed with Attention-Deficit/Hyperactivity Disorder.

Professor Directing Thesis: Janet A. Kistner, Ph.D.

UNDERGRADUATE EDUCATION:

1994-1997 Florida State University, Tallahassee, FL

1997 Bachelor of Science, Psychology, with Honors

Honors Thesis: Examining the relationship of academic ability to sociometric status for African American and White Students.

Professor Directing Thesis: Janet A. Kistner, Ph.D.

WORKSHOPS ATTENDED:

08/03 *Caring for Children with Diabetes in School*

Attended an educational seminar on the causes, treatment, and prevention of Type 1 and 2 diabetes, meal planning and carbohydrate counting, and legal aspects of diabetes.

Adela Mitchell, RN, CDE and Roberta Stephens, RD, CDE, Tallahassee Memorial Hospital

06/03 *Autism Diagnostic Observation Schedule (ADOS) Training*

Attended a four-day, small-group, intensive training designed to prepare attendees to utilize the ADOS in research and clinical practice. Administration and scoring reliability

was emphasized and specific feedback was given to enhance reliability.
Catherine Lord, Ph.D., Center for Autism and Related Disabilities (CARD)

06/03-08/03 *Therapist Development Workshop*

Attended 10, hourly meetings involving personal exploration and discussion of therapist-related issues.

Donald Kerr, Ph.D., Florida State University, Tallahassee, FL

02/02 *Autism Diagnostic Observation Schedule Training*

Attended a two-day training on the administration and scoring of the Autism Diagnostic Observation Schedule (ADOS), designed to prepare attendees to assess children and adults for autism and autism spectrum disorders.

Susan Risi, Ph.D., Tallahassee, FL

Supervised Clinical Experience

8/01 - 0/03 **Psychology Trainee**
Florida State University Multidisciplinary Center

Tallahassee, FL (850) 644-2222

10-20 hrs/wk

Supervisors: Janet Kistner, Ph.D. (ADHD and Learning Disorders); Beverly Atkeson, Ph.D. and Anne Selvey, Ph.D. (Autism and Learning Disorders)

Setting: Outpatient Child Guidance Center

Conducted comprehensive assessments of Learning Disorders, Mental Retardation, Attention-deficit/Hyperactivity Disorder, Pervasive Developmental Disorders and other disorders to children and adolescents in the Tallahassee community and surrounding areas.

8/01 to 8/02: Conducted assessments of in children and adolescents referred for evaluation of ADHD through the use of a clinical interview with the parent(s), a standardized assessment battery focusing on symptoms of ADHD and other externalizing and internalizing disorders, an interview with the child's teacher, school record review and classroom behavior observations. Responsibilities also included standardized assessment of learning disorders. An integrated psychological report was written for every child evaluated and a feedback session conducted with the parents or guardian of the child.

8/02 to 8/03: Participated in the design and implementation of a new initiative to conduct interdisciplinary evaluations of children suspected of having Autism or a related disorder. Coordinated efforts by a team of speech pathologists, masters-level clinicians and school personnel to evaluate referred children. Standard battery administered included the Autistic Diagnostic Interview, the Autism Diagnostic Observation Schedule, the Vineland, measures to estimate developmental level and/or intelligence, and parent and teacher report (standardized measures as well as an interview) of current symptoms. Differential diagnoses were a primary focus during many of the evaluations. An integrated psychological report was written for every child evaluated and a feedback

session conducted with the parents or guardian of the child.

8/01-8/03 **Psychology Trainee**
Florida State University Psychology Clinic
Tallahassee, FL (850) 644-3006
10hrs/wk
Supervisors: Donald Kerr, Ph.D. (2001-2002); Thomas E. Joiner, Jr., Ph.D. (2002-2003)
Setting: Outpatient Psychology Clinic

Outpatient psychotherapy and assessment of adult, adolescent, and child clients with a variety of presenting problems. Co-developed and co-led social skills training therapy groups for children with behavior disorders and interpersonal deficits. Conducted a parent-training group for parents of children with behavior problems. Primary theoretical approach involved cognitive restructuring and behavioral intervention utilizing empirically supported treatment modalities.

6/03-06/05 **Psychology Trainee**
Florida State University Crisis Management Unit
Tallahassee, FL (850) 644-1042
Average two 24-hour on-call shifts/wk
Supervisor: Joyce Carbonell, Ph.D.
Setting: Outpatient Crisis

Rotation through "on-call" status schedule, with management of emergency situations brought to the attention of the FSU police department. Responsibilities included working with a police officer to assess the emotional condition of the individual (including an empirically supported suicide risk assessment), crisis management intervention, consultation with medical and psychiatric hospitals, treatment planning and/or referral to appropriate community agencies.

07/05- Present **Clinical Child and Adolescent Psychology Intern**
University of Miami-Jackson Memorial Hospital
Miami, FL (305) 355-8245
40+ Hours/Week
Outpatient Clinic Supervisor: Steve Katsikas, Ph.D.
Inpatient Units' Supervisors: Winsome Thompson, Ph.D., Mercedes Briones, Ph.D., Susan Chalfin, Ph.D.

APA Approved Clinical Psychology Internship working with inpatient and outpatient children and adolescents. Primary rotation is in an outpatient clinic conducting comprehensive evaluations for various emotional and learning difficulties and providing therapy for a variety of DSM diagnosed disorders (often co-occurring with medical illness) utilizing appropriate, empirically supported treatment modalities.

Minor rotation on three inpatient units (4 months on each) including a long-term unit for severely mentally ill adolescents, a short-term, intensive unit that provides assessment and treatment of adolescents with addictions and a unit designed to offer brief crisis management and stabilization to children and adolescents. Primary responsibilities

include providing individual, family and group therapy, working with staff on behavior management programs for patients, discharge planning and assessing patients' current cognitive, educational and emotional functioning.

Additional training is provided to interns in the form of weekly didactics (totaling approximately 10 hrs/week) and includes weekly case conference meetings, psychopharmacology didactics, ethics rounds, a seminar on childhood trauma, Psychology Grand Rounds and Psychiatry Grand Rounds.

OTHER CLINICAL EXPERIENCE

09/99 - 04/00 **Co-leader of social skills group**
Hope Haven Children's Clinic and Family Center
Jacksonville, FL (904) 346-5100
3hrs/wk
Supervisor: JoAnn Hoza, Ph.D.

Assisted with social skills groups for children with ADHD and other behavior disorders in an outpatient assessment and treatment clinic. Met weekly with supervisor to discuss goals and progress for each child in the group as well as to plan group activities.

GRADUATE RESEARCH EXPERIENCE

9/04 – 06/05
Project Coordinator/Dissertation Research
Department of Psychology
Florida State University
Tallahassee, FL 32306
Supervisor: Janet A. Kistner, Ph.D. (850) 644-2040
Organized data collection and data entry of self-report and teacher measures of anger rumination, aggression, depression and stress among 300 elementary and middle school children. Supervised undergraduate research assistants who assisted on the project.

05/02 - 05/05 **Project Coordinator**
Department of Medical Humanities and Social Sciences
Florida State University College of Medicine
Tallahassee, FL
Supervisor: Suzanne Bennett-Johnson, PH.D.

Organized and supervised the data collection of an NIH funded grant investigating treatment adherence in children with diabetes. Responsibilities included recruiting patients, implementing a behavior-based, family-oriented problem-solving intervention, follow-up telephone contact with parents, attending parent support groups, training research assistants, and data management.

05/00 – 05/05 **Research Assistant**
Department of Psychology
Florida State University
Tallahassee, FL 32306
Supervisor: Janet A. Kistner, Ph.D.
Managed data collection and data entry of archival data from a clinic in Jacksonville, FL. This data was used for my master's thesis. Managed an ongoing clinical database of children referred for ADHD evaluations at an outpatient assessment center. Collaborated on research projects utilizing this clinical database as well as other data sets.

Scholarship and Publications

AUTHORED BOOK CHAPTERS:

- Repper, K.K.**, & Driscoll, K.A. (2004). Cognitive behavioral analysis system of psychotherapy for social skills deficits in children. In K.A. Driscoll, K.C. Cukrowicz, M.L. Reardon, T.E. Joiner, and Associates, *Simple treatments for complex problems: A flexible cognitive behavior analysis system approach to psychotherapy*. Mahwah, New Jersey: Lawrence Erlbaum.
- Repper, K.K.**, Burns, A., & Driscoll, K.A. Step Two: Interpretation of the situation. In Cukrowicz, K.C., Burns, A.B., Minnix, J.A., Reitzel, L.R., and Joiner, T.E. (Eds.) *Simple Treatment for Complex Problems: A Patient Workbook*. Mahwah, New Jersey: Lawrence Erlbaum. In Press.
- Tannenbaum, K., Jakobsons, L., Counts, C., and **Repper, K.K.** Treatment of children and families from diverse backgrounds. In J. Smith, Y. Castro, J. Denoma, and T.E. Joiner (Eds.) *The impact of diversity in the clinic. (working title)*. In preparation.

ARTICLES PUBLISHED IN PEER-REVIEWED JOURNALS:

- Kemper, T. S., Gerhardstein, R., **Repper, K. K.**, Kistner, J. A., (2003). Mother-Child Agreement on Reports of Internalizing Symptoms Among Children Referred for Evaluation of Attention Deficit Hyperactivity Disorder. *Journal of Psychopathology and Behavioral Assessment*, 25, 239-250.
- Kistner, J. A., David, C. F., Joiner, Jr. T. E., and **Repper, K. K.** Bias and accuracy of children's perceptions of peer acceptance: Prospective associations with depressive symptoms. *Journal of Abnormal Child Psychology*, Accepted for publication 08/05.
- Kistner, J. A., David, C.F., and **Repper, K.K.** Self-enhancement of peer acceptance: Implications for children's self-worth and interpersonal functioning. *Social Development*, Accepted for publication 09/05.
- Minnix, J. A., Reitzel, L. R., **Repper, K. K.**, Burns, A. B., Williams, F., Lima, E. D., Cukrowicz, K. C., Kirsch, L., & Joiner, T. E., Jr. (2005). Total number of MMPI-II clinical scale elevations predicts premature termination after controlling for intake symptom severity and personality disorder diagnosis. *Personality and Individual Differences*, 38, 1745-1755.
- Reitzel, L. R., Burns, A.B., **Repper, K. K.**, Wingate, L.R., & Joiner, T. E. (2004). The effect of therapist availability on the frequency of patient-initiated between-session contact. *Professional Psychology: Research and Practice*, 35, 291-296.

ARTICLES SUBMITTED FOR PUBLICATION IN PEER-REVIEWED JOURNALS:

Gerhardstein, R. R., Michels, J., **Repper, K. K.**, Lonigan, C. J., and Kistner, J. A., Confirmatory Factor Analyses of the Conners Teacher Rating Scale – Revised: Short Form. Submitted for review.

Repper, K. K., Gerhardstein, R. Stone, H. and Kistner, J. A., Profiles of Dysfunctional Social Behaviors in Children Diagnosed with ADHD. Submitted for review.

Repper, K. K., Kai Kai, D. M., David, C. and Kistner, J. A. Peer Relations and Academic Achievement: Is Doing Well in School a Social Liability for African American children? Submitted for Review.

Conference Presentations:

Kistner, J., David, C. and **Repper, K.K.** (2001). Predicting Depression from Actual and Perceived Peer Acceptance. *Poster presented at the Biennial Meeting of the Society for the Research of Child Development.* Minneapolis, MS.

Repper, K.K., David, C. and Kistner, J. (2003). Children's Social Self-perceptions and Depressive Symptoms: Is Realism Adaptive or Maladaptive? *Poster presented at the annual conference of the American Association of Behavior Therapists.* Philadelphia, PA.

Repper, K. K., Gerhardstein, R., Kistner, J. A., (2003). Profiles of Dysfunctional Social Behaviors in Children Diagnosed with Attention Deficit/Hyperactivity Disorder. *Poster presented at the Biennial Meeting of the Society for the Research in Child Development.* Tampa, FL.

Reitzel, L. R., Burns, A., **Repper, K. K.**, Wingate, L.R., & Joiner, T. E. (2003). Patients' Expectations of Therapists' Availability: A Sufficient Substitute for Availability Itself? *Poster presented at the 15th annual American Psychological Society (APS) convention.* Atlanta, GA.

Kistner, J., David, C., White, B. & **Repper, K.K.** (2004). Elevated Depressive Symptoms of African American boys. *Poster presented at the Annual Meeting of the American Psychological Association.* Hawaii.

Kistner, J., **Repper, K.K.**, & David, C. (2004). The short and long term consequences of children's self enhancing bias: Is ignorance bliss? *Poster presented at the Annual Meeting of the American Psychological Association.* Hawaii.

Repper, K.K., Driscoll, K., Johnson, A., & Kistner, J. (2004). The relationship between anger rumination and aggression in school age children. *Poster to be presented at the annual conference of the American Association of Behavior Therapists.* New Orleans, LA.

White, B., **Repper, K.K.**, David, C., & Kistner, J., (2004). Is the structure of children's self perceptions invariant across racial groups? *Poster presented at the annual conference of the American Association of Behavior Therapists.* New Orleans, LA.

Stone, H., **Repper, K.K.** and Kistner, J., (2005). The validity of the Attention/Executive Functioning domain of the NEPSY. *Poster presented at the annual conference of the American Associate of Cognitive and Behavioral Therapist.* Washington, DC.

TEACHING EXPERIENCE

- 01/05-04/05 **Teaching Practicum/Seminar**
Department of Psychology
Florida State University
Instructor: Mark Licht, Ph.D.
- Participated in a course designed to prepare students for teaching positions. Prepared and presented mini-lectures and received feedback from peers and instructor, taught two individual General Psychology classes (substituted for current graduate student teachers), developed teaching philosophies and prepared a teaching portfolio.
- 01/02-05/05 **Directed Individual Study Supervisor**
Department of Psychology
Florida State University
Course: PSY4912 (Small Undergraduate Course)
Supervisor: Janet A. Kistner, Ph.D.
- Supervised teams of 6-8 undergraduate students who were assisting with ongoing research projects in the lab. Weekly meetings were held in which the students discussed selected articles relevant to the projects on which they were working. Tutorials on statistics (e.g. ANOVA, regression and cluster analysis) were also provided to the students to enhance their research design skills and statistical knowledge.