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Assessment of Children's Response Styles: An Examination of Sex Differences, Stress Interactions, and Depressive Symptoms

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ASSESSMENT OF CHILDREN’S RESPONSE STYLES: AN EXAMINATION OF SEX DIFFERENCES, STRESS INTERACTIONS, AND DEPRESSIVE SYMPTOMS

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ABSTRACT

This study evaluated a vignette style measure (CRISES) of children’s response styles to sadness. It looked at the relationship between rumination and depression in children and tested Nolen-Hoeksema’s response styles theory of depression, which was partly developed to explain the emergence of sex differences in depression in adolescence. The theory posits that sex differences in response styles precede sex differences in depression that emerge in adolescence. Adolescent stressors were also hypothesized to interact with rumination to predict changes in depression. With use of the CRISES measure, the positive correlation between rumination and distraction observed in previous studies examining young populations disappeared. More importantly, the CRISES was able to demonstrate the cross-situation consistency of response styles in a sample of children. Although no sex differences were found, response styles theory can be useful in explaining individual differences in symptoms of depression as levels of rumination and distraction were concurrently associated in the predicted directions with scores on the CDI. Furthermore, an interaction of stress and distraction demonstrated the protective influence of distraction from depressive symptomatology in the face of changes in stress.
INTRODUCTION

Rates of depression increase drastically from childhood to adolescence. Not only is there an increase in prevalence during adolescence, but sex differences also emerge at this point. In prepubescent children, the prevalence of depression is about the same for girls and boys (Nolen-Hoeksema, Girgus, & Seligman [1991] as cited in Driscoll, 2004), or boys are more depressed than girls (Hankin et al., 1998; Rudolph & Hammen, 1999). However, during adolescence, females are more likely to report incidents of depression than males. Adult prevalence rates show that females are twice as likely to be depressed as males (DSM IV-TR, 2000).

One theory that may help to explain the emergence of sex differences in depression in adolescence is the response styles theory of depression (Nolen-Hoeksema, 1990; Nolen-Hoeksema & Girgus, 1994; Nolen-Hoeksema, Grayson, & Larson, 1999). According to this theory, the way in which individuals respond to sad or depressed moods may contribute to their vulnerability to depression. Nolen-Hoeksema and Girgus (1994) posited that there are sex differences in response styles that precede adolescence and the emergence of sex differences in depression. They hypothesize that girls are more likely than boys to have a response style that is associated with increased vulnerability to depression. When faced with the normative challenges of adolescence, girls are expected to be at higher risk for depression than boys because of this preexisting sex difference in response styles. To test this hypothesis, it is necessary to assess response styles prior to adolescence. Several measures of children’s response styles have been developed but questions about their developmental sensitivity to how children respond to sad feelings have been raised. This study examines an alternative method of assessing children’s response styles. Before describing this study, an overview of response styles theory and a review of research of response styles in children are presented.

Overview of Response Styles Theory

According to the response styles theory of depression, engaging in ruminative responses increases the duration and severity of depressive symptoms. Ruminative responses are defined as thoughts and behaviors that passively focus one’s attention on one’s negative mood and the consequences of those moods (Driscoll, 2004). Rumination includes isolating oneself to think about one’s feelings, communicating to others how badly one feels, and worrying about the causes and consequences of depression (Trask & Sigmon, 1999). In contrast, engaging in distractive responses, such as participating in activities that take one’s mind off his/her symptoms of depression, decreases the duration and severity of these symptoms.

Nolen-Hoeksema (1991) proposes three mechanisms by which rumination serves to intensify and prolong depressive symptoms. First, because ruminative responses are associated with a focus on sad or depressed moods, it increases the likelihood that individuals will recall more negative memories, access negative thoughts, and make more pessimistic inferences about events in one’s life. Rumination, therefore, maintains depression by creating a vicious cycle: rumination about depressed moods leads to more negative inferences that contribute to increased severity of depressive symptoms and moods. Second, because rumination promotes pessimistic thinking and interferes with attention and concentration, it is likely to impede effective problem-solving. When in a depressed mood, individuals who ruminate tend to think about fewer and lower quality solutions to their problems than when they are not in a depressed mood (Abela, Brozin, & Haigh, 2002). Third, because rumination impairs concentration and increases negative thinking, it is less likely that a person would actually engage in behaviors necessary to alleviate
depressive symptoms. The absence of effective problem-solving behaviors may lead to increased failures and a greater sense of helplessness in controlling one’s environment, thus intensifying symptoms and contributing even further to depression.

Whereas rumination increases both the severity and duration of depressive symptoms, distraction is hypothesized to ease such symptoms. Engaging in pleasant and positively reinforcing activities is theorized to be effective because it interrupts the mechanisms that mediate the relationship between rumination and increases in depressive symptoms. When depressive symptoms are alleviated, individuals can engage more effectively in problem-solving behaviors (Nolen-Hoeksema, Morrow, & Frederickson, 1993).

Several longitudinal studies using adult samples have shown that individuals who ruminate have higher levels of depressive symptoms over time, when controlling for baseline levels of depression (Butler & Nolen-Hoeksema, 1994; Just & Alloy, 1997; Nolen-Hoeksema, Parker, & Larson, 1994). However, results from these naturalistic studies that examine the hypothesized effects of distraction on the severity and duration of depressive episodes have demonstrated mixed outcomes (Butler & Nolen-Hoeksema, 1994; Just & Alloy, 1997).

Hypothesized effects of distraction on depression have had the greatest support from experimental studies (Lyubormirsky & Nolen-Hoeksema, 1993, 1995; Nolen-Hoeksema, Morrow, & Frederickson, 1993; Morrow & Nolen-Hoeksema, 1990). In a study conducted by Morrow and Nolen-Hoeksema (1990), participants were randomly assigned to experimental groups following mood induction. Participants in the ruminative-passive group were instructed to read self and emotion focused sentences while those in the distracting-active group read sentences about external events as they engaged in mild physical activity. Mood changes were evaluated by calculating the difference between subjects’ pre- and post-induction mood ratings. The ruminative-passive group remained depressed, whereas the distracting-active group experienced the most relief from the induced sad mood.

In addition to hypothesizing that response styles affect the duration and severity of depressive symptoms, another important component of Nolen-Hoeksema’s theory is that it seeks to explain sex differences in depression. The response styles theory suggests that sex differences in rumination mediate the sex differences in depression. Many studies have confirmed that women are more likely to engage in ruminative responses than men (Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema, Parker, & Larson, 1994; Just & Alloy, 1997; Nolen-Hoeksema, Grayson & Larson, 1999; Butler & Nolen-Hoeksema, 1994). The hypothesis that men engage in distraction more than women when responding to sad moods has not been as well supported (Butler & Nolen-Hoeksema, 1994; Conway, Giannopoulos & Steifenhofer, 1990).

Studies have shown that when controlling for sex differences in rumination, the sex differences in depression disappear (Nolen-Hoeksema, Parker, & Larson, 1999). After controlling for initial depression, a study conducted by Butler and Nolen-Hoeksema (1994) found that women were more likely than men to ruminate and that rumination significantly predicted depressive symptoms two weeks later. More importantly, after controlling for rumination, gender was no longer a predictor of depression.

Thus, studies in the adult literature by Nolen-Hoeksema as well as other research teams have found corroborating evidence for the response styles theory of depression, especially in regards to increased vulnerability to depression among individuals with a ruminative response style. Results found in adult samples demonstrate that individuals who ruminate to sadness do indeed report more depressive symptomatology than those who primarily use distraction (Butler & Nolen-Hoeksema, 1994; Just & Alloy, 1997; Nolen-Hoeksema, Parker, & Larson, 1994). Moreover, results from a study conducted by Butler & Nolen-Hoeksema (1994) showed that, when testing an adult sample, women were more likely than men to ruminate, implying the
involvement of response styles as a possible causal mechanism for sex differences in depression. It is important to note, however, that all these results and associations between response styles and depression were tested and found in adult samples.

**Explaining the emergence of sex differences in adolescence**

It is a well-documented finding that women experience depression more often than men. This sex difference in depressive symptoms appears to emerge in early adolescence (e.g., Hankin, Abramson, Moffitt, Silva, McGee & Angell, 1998; Petersen, Sarigiani, & Kennedy, 1991) and is evident across every adult age group, with the exception of the elderly (Nolen-Hoeksema & Girgus, 1994). Although several theories have been proposed to explain the etiology of depression, very few of them attempt to explain the emergence of sex differences in depression that emerge in adolescence. Response styles is noteworthy in this respect; one of the appeals of this theory is its potential for explaining the emergence of sex differences in depression in adolescence. The response styles theory is comprised of two important tenets aimed at explaining why sex differences in depression occur (Nolen-Hoeksema & Girgus, 1994; Driscoll, 2004). First, the theory posits that girls more than boys have a tendency to ruminate in response to sadness and that these sex differences in response styles precede adolescence and the emergence of sex differences in depression. Second, the theory posits that the tendency to ruminate interacts with increasing levels of stress to increase the risk of depression.

To date, support for response styles theory as it pertains to explaining the emergence of sex differences in depression is quite scarce. Earlier studies conducted by Nolen-Hoeksema and other colleagues suggested that response styles in younger populations explained sex differences in depression (Girgus, Nolen-Hoeksema, & Seligman, 1989 as cited by Driscoll, 2004; Broderick, 1998). However, results of these studies should be interpreted with caution because samples included adolescents as well as preadolescents. Although girls reported more ruminative responses than boys, these results could not demonstrate that sex differences in response styles preceded the emergence of sex differences in depression because adolescents in the mixed age sample already displayed sex differences in depression. More recent studies have assessed sex differences in response styles in children, prior to the emergence of sex differences in depression, with mixed results. Several studies found support for the hypothesis that girls are more likely than boys to ruminate in response to sad or depressed moods (Driscoll, 2004; Ziegert & Kistner, 2003) while others did not (Abela et al., 2002). Even in the studies that supported the sex difference hypothesis, the effect size was small and, in the study by Driscoll (2004), limited to the older children in the sample (i.e., sex difference was found for 6/7th graders but not among children in grades 2 – 5).

In regard to the second component of Nolen-Hoeksema’s theory, children’s response styles are hypothesized to interact with stress to produce increased levels of depression. In their review of the literature, Nolen-Hoeksema and Girgus (1994) offer a compelling rationale for a diathesis-stress model of depression to explain the emergence of sex differences in depression. Studies of response styles in adult samples suggest that rumination may be one such diathesis that contributes to greater vulnerability to depression among girls relative to boys. Although the number of studies of children’s response styles is small, there is evidence of patterns of associations with children’s depressive symptoms that mirror the findings reported for adult samples. Most notably, rumination is concurrently associated with higher levels of depressive symptoms, and distraction with lower levels of depressive symptoms, in child samples (Driscoll, 2004; Ziegert & Kistner, 2000). However, findings for prospective associations of children’s response styles with depression are mixed, with some reporting that rumination predicts increases in depressive symptoms (Abela et al., 2002) while others do not (Driscoll, 2004;
Ziegert & Kistner, 2000). No published studies have investigated whether children’s response styles interact with stress to predict increased risk of depression. Clearly, additional research is needed to test the diathesis-stress hypothesis and to address inconsistent findings within this emergent area of research. One of the potential impediments to advancement in this area of research is the availability of appropriate measures of children’s response styles. Issues pertaining to the assessment of children’s response styles are discussed next.

Assessment of Response Styles in Children

As the need to examine response styles in younger populations became apparent, an important question arose: how are response styles best assessed in children? The most commonly used measure of response styles is the Response Styles Questionnaire (RSQ) developed by Nolen-Hoeksema and Morrow (1991). This measure is appropriate for use with adults and adolescents (Abela et al., 2002; Driscoll, 2004) but not for children. The most commonly used measures of children’s response styles are the Children’s Response Style Questionnaire (CRSQ; Abela, Rochon, & Vanderbilt, 2000) and the Children Response Styles Scale (CRSS; Ziegert & Kistner, 2002). Both measures are based on the RSQ and were specifically adapted for use with elementary school-aged children and although they differ in specific items (i.e., the CRSS has less content overlap with measures of depression than the CRSQ) these measures are similar in their general format. Both the CRSS and CRSQ ask children to report (using Likert ratings) how they typically respond to feelings of sadness or depressed moods. There is support for the reliability and validity of both measures (Abela et al., 2002; Ziegert & Kistner, 2001; Driscoll, 2004). Rumination, as assessed by the CRSS and CRSQ, is concurrently associated with higher levels of depressive symptoms while distraction is associated with lower levels of depressive symptoms (Ziegert & Kistner, 2001; Driscoll, 2004). While these results suggest that response styles in children can be reliably and validly assessed and appear to operate in a similar manner to response styles assessed at older ages, there is one perplexing finding that challenges this conclusion. Regardless of whether the CRSS or CRSQ is used to assess children’s response styles, rumination and distraction are positively correlated in child samples (3rd graders in Abela et al., 2000; Driscoll, 2004; Ziegert and Kistner, 2002). This finding conflicts with results of many studies of adults and adolescents that report either no or inverse associations between rumination and distraction. This finding is also at odds with the very notion of response styles. A style of response to sadness implies consistency in the way in which individuals cope with their feelings of sadness. As discussed previously, ruminating consists of thoughts and behaviors that keep an individual focused on their problem or sadness; those who ruminate are unable to get their thoughts away from the event. In clear contrast, distraction involves participating in a fun activity to get one’s mind off of the event, or simply forgetting the problem and being able to think about other things. Given that one cannot simultaneously ruminate and distract, the consistent finding that rumination and distraction are positively correlated in children raises critical questions about the construct of children’s response styles.

Two explanations may be offered for the positive correlation between children’s rumination and distraction scores. The first explanation hypothesizes that response styles are well established in childhood but measures like the CRSQ and CRSS lack sensitivity to individual differences in children’s response styles. The second explanation for positive correlations between rumination and distraction in child samples is that response styles are not fully formed in the period of middle childhood. The purpose of this study was to test these two possible explanations for this finding. These explanations are elaborated on next.
Explanation 1: Measures of children’s response styles lack developmental sensitivity

The unexpected positive correlations between rumination and distraction may be an artifact of the way in which children’s response styles are assessed. According to this explanation, children do respond to sadness in a consistent manner but the abstract nature of questionnaire measures like the CRSQ and CRSS do not accurately capture children’s reactions. Although these questionnaires were adapted for younger populations and seemed to work for adolescents and preadolescents, they may be inappropriate for younger children. As previously noted, both measures ask children how they respond “in general” to sad moods. This may exceed the cognitive abilities of younger children. Children may have consistent styles of responding to sadness but it may be necessary for measures of response styles to provide children with salient situations to which they can respond.

A precedent exists for such age-based discontinuity problems with assessment instruments. For example, a similar problem was encountered by Carol Dweck (2000) and her research on attributional styles and the entity theory of intelligence. Research with children did not properly assess the constructs of interest and responses did not provide adequate portrayals of their beliefs on the matters in question until a developmentally sensitive measure using vignettes was created. It was important to take into consideration that children need more salient and concrete cues and/or questions to accurately describe their experiences. A measure that is more developmentally sensitive can better extract information about children's experiences than abstract questions. This change in assessment strategy enabled investigators to capture responses that reflected children’s attributional styles (Dweck, 2000). As seen with attributional styles, perhaps a measure that is sensitive across various developmental stages may provide a more accurate portrayal of children’s response styles. It is possible that although modifications of existing measures of children’s response styles were intended for use in the period of middle childhood, children in this developmental period may lack the introspective abilities to reflect on their general styles of responding to their negative moods and emotions.

Explanation 2: Response styles to sad moods are not well-established in middle childhood

An alternative explanation for positive correlations between rumination styles and distraction in child samples is that response styles may not be fully formed prior to adolescence. A lack of consistent responses to sadness in middle childhood may result in positive correlations between rumination and distraction. Related to this, perhaps their tendency to distract is not yet effective at alleviating their depressive symptoms that are intensified by their tendency to ruminate (Abela et al., 2002). These frequent, yet unsuccessful, attempts to use distraction and problem-solving may ultimately lead children to abandon such response styles in the future, leaving them to rely solely on passive strategies like rumination.

Response styles are expected to be consistent across time and situations. Retest reliabilities of children’s responses to the CRSS reveal some consistency in response patterns over time. Ziegert & Kistner (2002) found good test-retest reliabilities for rumination and distraction (.69 and .74, respectively) over a three week period using the CRSS. Also, moderate correlations were found in Driscoll (2004) for test-retest reliabilities (rumination T1-T2 \( r = .54 \), distraction T1-T2 \( r = .55; p<.05 \)). Perhaps these scores were slightly lower because of the longer prediction interval tested (9 months). However, to date, no studies have examined the consistency with which children respond to sadness across situations. It is possible that young children ruminate in response to some situations and distract in response to others. If this is true, it could explain positive correlations between rumination and distraction on questionnaires that do not specify situations. For example, if a child is given a generally abstract question that asks...
if he or she respond with distraction, the child can think of an event in which he or she did act as
the way that was described and positively endorse the distraction item. Then, on another
question that asks whether the child ruminates, the child can think of another situation in which
he or she focused on a problem and sad thoughts and arrive at another "yes" response. The end
result may be positive correlations between rumination and distraction.

Present Study

The goal of the present study was to test these competing explanations (i.e.,
developmentally insensitive assessment instrument vs. lack of established response styles) of the
finding of positive correlations between children’s reports of rumination and distraction. To
accomplish this goal, children’s response styles were assessed using a measure that differs from
the CRSS and CRSQ in one important respect. Instead of asking children to reflect on how they
respond to sad feelings “in general” and in the absence of any context, the measure used to
assess response styles in the present study presented children with hypothetical situations or
vignettes, and asked them to imagine how they would respond. Responding to specific situations
is expected to be cognitively less demanding and thus a more developmentally sensitive way to
assess children’s response styles. If the positive correlation between rumination and distraction
reported in prior research is an artifact of the abstract nature of measures used to assess
children’s response styles, then the use of vignettes to assess children’s response styles should
not result in positive correlations between rumination and distraction (i.e., based on results with
adolescents and adults, rumination is expected to be unrelated or inversely related to distraction).
On the other hand, if the positive correlation between rumination and distraction reflects a lack
of well-established response styles in middle childhood, then rumination and distraction are
expected to be positively correlated when assessed by their responses to vignettes. Furthermore,
lack of established response styles is expected to also result in inconsistent responses across
vignettes.

The present study used archival data that were collected as part of a larger study
assessed by the CRSS. Consistent with prior research, Driscoll found that rumination and
distraction were positively correlated ($r = .41, p < .01$). The present study focused on a newly
developed measure of children’s response styles, Children’s Responses to Imaginary Situations
that Elicit Sadness (CRISES). CRISES was adapted from two measures that were used in prior
research (Broderick, 1998; Ziegert & Kistner, 2003). In contrast to the CRSS and CRSQ which
ask children how they respond “in general” to feelings of sadness, the CRISES presents vignettes
depicting situations that are likely to elicit feelings of sadness and children are asked how they
would respond to these situations. It was hypothesized that rumination would be uncorrelated or
inversely correlated with distraction when children’s response styles were assessed with the
CRISES. It was also hypothesized that children’s tendencies to ruminate or distract to sad
feelings would be consistent across vignettes.

Another purpose of this study was to examine the psychometric properties of the CRISES
to determine whether or not this measure may be used to replace currently used measures of
children’s response styles. Specifically, internal consistency and retest reliabilities of CRISES
rumination and distraction were used to assess reliability. Validity of the CRISES was assessed
by examining concurrent correlations of rumination and distraction scores with depressive
symptoms. It was predicted that rumination would correlate with higher levels of depressive
symptoms and distraction with lower levels of distraction.

Finally, response styles, as assessed by the CRISES, were used to investigate the two
major tenets of response styles theory as it applies to explaining the emergence of sex
differences in depression: 1) girls are more likely than boys to ruminate in response to sadness, a
difference that precedes the emergence of sex differences in depression; and 2) rumination
interacts with stress to predict increases in depression. For reasons already discussed, young
children might be better able to answer the questions within the framework of the specific event
when this measure of response styles is used, thus providing more sensitive assessment of
response styles of children. By using a developmentally sensitive measure, not only may the
positive correlation between rumination and distraction disappear, but the same adult patterns of
sex differences and predictive relationships with depressive symptoms may be found in a wider
range of young children, as all age groups are expected to have similar sex differences. My
primary interest is in rumination because of its association with depressive symptoms. However,
distraction may serve as a protective factor and is worth looking at even though findings (at least
in the adult literature) are varied and do not show distraction as having predictive links with
depression or demonstrating sex differences.

In summary, the following hypotheses were tested in the present study:
1. Rumination and distraction as assessed by the CRISES will be inversely correlated.
2. CRISES rumination and distraction responses will be consistent across situations and reliable
   over time.
3. CRISES rumination and distraction scores will concurrently correlate with depressive
   symptoms (i.e., rumination will positively correlate, and distraction will negative correlate
   with depressive symptoms).
4. Sex differences will be found for CRISES rumination and distraction among children in
   grades 2 through 7 (i.e., girls will ruminate more than boys; boys will distract more than
   girls).
5. Response styles as assessed by the CRISES will interact with stress to predict changes in
   depressive symptoms (i.e. children with a ruminative response style who encounter elevated
   stress will experience an increase in depressive symptoms over time; children with a
   distracting response style who encounter elevated stress will experience a decrease in
   depressive symptoms).
Participants

Children in 2\textsuperscript{nd} through 7\textsuperscript{th} grades were recruited to participate from the Florida State University School, which is affiliated with Florida State University. The Time 1 sample of children was 50.2% girls and 49.8% boys. Several backgrounds were also represented in this sample (66.7% Caucasian, 19.1% African American, 8.3% Hispanic, 1% Asian, 0.3% American Indian, and 4.6% biracial). The total number of children participating at Time 1 was 303 and 270 at Time 2. Children included in Time 1 data collection ranged in ages from 7 years old to 17 years old, with a mean age of 10. Children participating in Time 2 ranged in ages from 7 years old to 14 years old, again with a mean age of 10.

Procedure

Parental consent was obtained in January 2003 when the Time 1 sample was first tested. Driscoll (2004) sent letters to the parents of the children, explaining the nature of the study and emphasizing how the involvement of their child was completely voluntary. The informed consent form stated that children would be involved by completing questionnaires administered at two different sessions, January 2003 and January 2005. Their child’s answers would be strictly confidential and their participation completely unrelated to his/her grades. Additionally, the form informed the parents that if their child’s responses to the questionnaires indicated that he/she appeared to be experiencing depressive symptoms, the clinical psychologist supervising the study would be consulted. If after a discussion with the child, the psychologist confirmed the severity of depressive symptoms, the parents would have been notified and provided with recommendations for professional help (Driscoll, 2004).

Because parental consent was already obtained, Time 2 collection (January 2005) was carried out in the same manner as Time 1 (January 2003). The data collection periods were two years apart, so most Time 1 students had advanced 2 years in school by data collection at Time 2. All children whose parents consented to their participation were asked to complete a packet of measures in a group setting (i.e. the cafeteria). Depending on the age of the children, data collection took approximately 1 hour and 30 minutes since the packets also included questionnaires unrelated to this study.

Children were told that the graduate student researcher is conducting a study on children’s feelings and is interested in learning about the things that they do and think when they are sad. The packets of questionnaires, containing assent forms, were then distributed. The assent form was read aloud and the children’s signatures were obtained, indicating their willingness to participate in the study. The child assent form stated that their answers will be confidential and that they did not have to answer any questions if they did not want to. They were also told that they could stop participating in the study at any time. They were informed that their grades would not be affected in any way. Once assent forms were signed, participants were reminded that there are no right or wrong answers. Undergraduate research assistants were present to help children with any questions they had about the measures or if they had any difficulty completing them. When children completed the packets, the researchers dismissed the class and thanked them again for their cooperation.

Measures

Response Styles. The Children’s Responses to Imaginal Situations that Elicit Sadness (CRISES; Appendix C), adapted from measures developed by Broderick (1998) and Ziegert &
Kistner (2002), was used to assess children’s response styles to sad feelings. The CRISES presents six hypothetical situations (i.e. studying for a test but getting a poor grade, finding out a pet is very sick, being teased by others, not getting an invitation to a party, friend moving away, and a cancelled family vacation). For each situation, children answer 4 questions: two questions describe a ruminative response and the other two describe distraction. Children are asked to rate on a 7-point Likert scale ranging from 1 (not really true for me) to 7 (really true for me).

**Depressive Symptoms.** Depressive symptoms were measured using the Children’s Depression Inventory (CDI; Kovacs, 1981). The CDI is a 27-item, self-report measure appropriate for 7-17 year old children. Participants choose one sentence that best describes symptoms they have experienced in the past 2 weeks. Subscales of the CDI include negative mood, interpersonal problems, ineffectiveness, anhedonia, and negative self-esteem that together form a total score. The CDI is considered a reliable and valid measure of depressive symptoms. Studies show alpha ranges from .86 to .90 (Kovacs, 1992; Reynolds, 1994). Cronbach’s alpha for the CDI total score was .88 for the entire sample used in Driscoll (2004). Cronbach’s alpha for 2nd/3rd, 4th/5th, and 6th/7th graders, respectively, was .80, .91, and .90 (Driscoll, 2004).

**Stress.** Children completed the Children’s Hassles Scale (CHS; Kanner, Feldman, Weinberger, & Ford, 1987), a measure of children’s experiences of daily hassles. It is comprised of 25 events and children indicate whether or not a particular event has occurred in their lives during the past year. A total score for the items on the CHS will be calculated and used in analyses. Kanner et al. (1987) found adequate internal consistency of the CHS at 0.87. The total scores for the CHS in Time 1 and Time 2 were used to calculate the change in stress between the two time periods (CHS residual). In other words, the difference between Time 1 CHS and Time 2 CHS was saved as a standardized residual after regressing Time 2 CHS onto Time 1 CHS where Time 1 CHS was the sole predictor for Time 2 CHS. This new variable (CHS residual) was the stress variable included in the analyses.
RESULTS

Preliminary Analyses

There were several children whose data were collected at Time 1, but were not obtainable at Time 2 (N=61) due to continual absences on the days of testing or no longer attending the same school. Participants of Time 1 who dropped out and those who returned for Time 2 did not differ with respect to ethnicity or sex. A mean-based method of identification indicated that there were no univariate outliers for any of the variables. Mahalanobis distances suggested that there were two 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. This was only problematic for CDI scores at Time 1 and Time 2; therefore square root transformations were conducted to correct for nonnormality. All analyses were conducted using the raw data as well as the transformed data and yielded no differences in predicted results; therefore, it was decided to report analyses using raw data. No participants met criteria for removal from the analyses since none reached the predetermined cut-off of having more than 20% of the items blank. Values were replaced using with-in subject medians for the specific measures. Values for 12 items on the CRIES across 8 participants were replaced, along with 50 items across 50 participants for the CDI. After replacing missing values, the number of complete protocols used for the following analyses totaled 270.

Descriptive Information about the CRIES

CRIES contains 6 situations with 4 items nested within each vignette, totaling 24 item responses. Each response was recorded on a Likert Scale numbered 1 to 7. Means and standard deviations for all individual items for Time 1 and Time 2 are included in Tables 1 and 2. As the item means and standard deviations demonstrate, responses for all CRIES items show reasonable variation, with means falling within the center of the range and large standard deviations. No floor or ceiling effects were found.

Cross-situational Consistency of Children’s Responses to Sadness

It was hypothesized that children’s tendencies to ruminate or distract in response to sad feelings would be consistent across situations. To test this hypothesis, I examined correlations among rumination and distraction scores across the six vignettes of the CRIES. Also, the internal consistencies (Cronbach’s alpha) of rumination and distraction scores were calculated to provide an index of the magnitude of cross-situational consistency of children’s responses to sadness (internal consistencies were calculated before missing values were replaced, thus the sample size is slightly smaller in these analyses, n = 262).

The correlations between the 2 rumination items nested within each vignette as well as across situations are included in Table 3 for Time 1 and Time 2. Table 4 presents the correlations among the Distraction items at time 1 and time 2. The cross-situation correlations of the mean rumination and distraction scores for each situation are included in Tables 5 and 6, respectively. Two methods of testing the internal consistency of the rumination and distraction items of the CRIES were used. To test internal consistency of the scale, all the rumination (n=12) and distraction items (n=12) were used in the calculation of Cronbach’s alpha. This method resulted in alphas of .83 for rumination and .84 for distraction. When separated by sex, boys had calculated alphas of .84 for rumination and .86 for distraction. Girls had calculated alphas of .82 for rumination and .81 for distraction. When calculated separated by age, the youngest group of 2nd/3rd graders had calculated alphas of .77 and .86 for rumination and distraction, respectively.
The 4th/5th graders had calculated alphas of .84 for rumination and .82 for distraction. The oldest group (6th/7th graders) had alphas of .83 and .79 for rumination and distraction, respectively. Since there are 2 rumination and 2 distraction items nested within each situation, this method of calculating internal consistency combines consistency of responses within and between situations. To more directly assess cross-situational consistency of children response styles, internal consistency of the mean rumination and mean distraction items within each situation was calculated. This resulted in an alpha of .77 for rumination and .79 for distraction for the overall sample. For boys, calculations resulted in alphas of .79 for rumination and .82 for distraction. Girls had calculated alphas of .75 for both rumination and distraction. Children in 2nd and 3rd grades obtained alphas of .71 for rumination and .82 for distraction. The 4th/5th graders obtained alphas of .80 and .75 for rumination and distraction, respectively. Calculating the data from 6th and 7th graders using this method resulted in alphas of .73 for rumination and .75 for distraction. Alphas calculated by each method for Time 2 can be found in appendix B.

**Stability over Time**

Test retest reliabilities were evaluated by determining the correlations of the individual subscales. Retest reliabilities were .48 (p<.001) for Rumination and .33 (p<.001) for Distraction. Retest reliabilities were also examined by sex and grade level. For boys, retest reliabilities for rumination and distraction were .53 (p<.001) and .38 (p<.001), respectively, while girls obtained reliabilities of .44 (p<.001) for rumination and .29 (p<.001) for distraction. With respect to age, retest reliabilities were also examined by grade levels. Children in 2nd and 3rd grades obtained retest reliabilities of .45 (p<.001) for rumination and .29 (p<.001) for distraction. Retest reliabilities for rumination and distraction for children in 4th and 5th grades were found to be .29 (p<.001) and .37 (p<.001), respectively. For children in 6th and 7th grades, retest reliabilities were .56 (p<.001) for rumination and .37 (p<.001) for distraction. While significant, the magnitude of these retest reliabilities may suggest limited stability of response styles over time, as assessed by the CRISES.

**Correlations between Rumination and Distraction**

An important goal of this study is to explain the positive correlation between rumination and distraction found in other studies. It was predicted that rumination and distraction, as assessed by the CRISES, would not result in positive correlations but would replicate the findings reported for adolescents and adults of either no correlation or inverse correlations between rumination and distraction. The measure used for determining this relationship were the subscales for rumination and distraction, which added all individual rumination and distraction items to their respective subtotals. In accord with this prediction, rumination and distraction scores were uncorrelated at Time 1 (r= -.08, p > .10) and inversely correlated at Time 2 (r= -.12, p<.05). The strengths of these correlations were also looked at separately by sex and age. For boys at Time 1 and Time 2, rumination and distraction scores were uncorrelated (r = -.04, p >.10 and r = .00, p >.10, respectively). In regard to girls in the sample, rumination and distraction scores were uncorrelated at Time 1 (r = -.15, p <.10), and showed significant negative correlation at Time 2 (r = -.24, p<.01). To determine whether age was a moderator of this relationship between rumination and distraction, correlations were looked at separately according to 3 different grade groups (2nd/3rd, 4th/5th, 6th/7th). For 2nd/3rd graders at Time 1 as well as the same group of children at Time 2, rumination and distraction scores were uncorrelated (r = .11, r = -.13, respectively, both at p > .10). Children in 4th/5th grades at Time 1 reported a significant negative correlation between rumination and distraction (r = -.25, p<.05) while Time 2 scores were uncorrelated (r = .06, p>.10). Finally, for 6th and 7th graders at Time 1
and Time 2, results showed rumination and distraction scores were significantly negatively correlated ($r = -.26$, $p<.01$ and $r = -.33$, $p<.01$, respectively).

**Concurrent Associations of Response Styles with Depressive Symptoms**

Time 1 rumination and distraction subscales were significantly associated in the expected directions with Time 1 CDI totals at $p<.01$ ($r = .27$ and $r = -.24$, respectively). For Time 2, rumination was also positively correlated with Time 2 CDI totals ($r = .40$, $p<.01$) while distraction remained negatively correlated ($r = -.18$, $p<.01$). These results can function as a validity check of CRISES rumination and distraction scores and reflect support of the new measurement’s validity.

The aforementioned correlations reflected the association between response styles and depressive symptoms for the entire sample, however, additional multiple regression analyses were used to test the unique associations of response styles with depressive symptoms and to assess for possible moderating effects of sex and/or age. With Time 1 CDI as the dependent variable, Sex and Age were entered as the first step. Time 1 Rumination and Time 1 Distraction were entered as the second step. The third step was testing moderating effects by including the following interaction terms: CRISES rumination X Sex, CRISES rumination X Age, CRISES distraction X Age, and CRISES distraction X Sex. T1 CRISES rumination and distraction accounted for a significant proportion of the variance. The unique effects of rumination and distraction were significant and in the predicted direction, rumination positively associated with depressive symptoms and distraction negatively associated with these symptoms. None of the interactions with sex were significant, suggesting that the pattern of associations between response styles and depression are comparable for boys and girls. Rumination did not interact with age, but the interaction between Distraction and Age was significant. As demonstrated in Figure 1, although different levels of distraction do not seem associated with different scores on the CDI at younger ages, one’s level of distraction seems to be linked with depressive symptomatology at older ages, with distraction serving as a protective factor. In other words, at older ages, children who have high levels of distraction have lower scores on the CDI while those with lower levels of distraction experience more depressive symptoms and score higher on the CDI. The same regression analysis was run for Time 2 concurrent relationships by substituting Time 2 CDI total as the dependent variable, but no additional significant findings were demonstrated.

**Sex Differences in Response Styles**

One of the main tenets of the response style theory states that sex differences in response styles are present before sex differences in depression. Since a main goal of this study is to evaluate Nolen-Hoeksema’s theory in children, the third hypothesis posits that there will be sex differences in response styles (girls will ruminate more than boys) and that these differences will not be caused by sex differences in depressive symptoms. The mean Time 1 rumination score was 50.12 (SD=15.49) for boys and 49.19 (SD= 14.19) for girls, ($t = .54$, $p=.29$). For Time 2, the mean rumination score was 42.37 (SD=17.49) for boys and 41.60 (SD= 17.31) for girls, ($t = .36$, $p=.96$). A vignette x sex ANOVA was applied to the rumination and distraction scores to assess whether boys and girls responded differently across situations. No significant differences between particular vignettes and sex were found in either rumination or distraction at Time 1 or Time 2. However, a main effect of vignette was found so that certain vignettes pulled more for rumination responses while others pulled more for distraction. This, again, was an overall effect, including both boys’ and girls’ responses to the measure. The vignette that pulled for higher ruminative responses (Time 1: M= 5.0; Time 2 M= 4.3) across boys and girls as well as across
Time 1 and Time 2 data collection involved a pet being very sick and possibly dying (p<.01). Higher scores for distraction were observed in the vignette where a family vacation is postponed because the child got sick.

Regression analyses were used to assess whether sex differences in rumination and distraction varied by age. With either Rumination or Distraction as the dependent variable, Time 1 CDI was entered as the first step to assess sex differences in response styles independent of depressive symptoms. Sex and Age were entered as the second step. The third step consisted of the two-way interaction of Sex X Age. No main effect of age or sex was found for Rumination, but the Age x Sex interaction was significant. This interaction is illustrated in Figure 1. Boys and girls both demonstrated a decrease in rumination over time. However, there was a steeper decline in rumination scores in boys, thus leading to a bigger gap of rumination between boys and girls at older ages. The same hierarchical multiple regression was used in a separate analysis to look at sex differences in distraction using T1 CRISES distraction as the dependent variable. CDI scores significantly accounted for an increase in variance in Distraction scores. Neither age, sex, nor the interaction of sex and age predicted Distraction scores. Table 7 contains the unstandardized regression coefficients (B), standardized regression coefficients (β), Significance Coefficients (Sig.), and ∆R² at the step when each variable was entered. A similar regression was run for Time 2 response styles, but the only significant predictor for rumination and distraction was Time 2 CDI scores.

Prospective Associations: Testing the Diathesis-Stress Model

The final hypothesis of this study discusses the interaction of rumination and stress as being predictive of changes in depressive symptoms. Nolen-Hoeksema and Girgus (1994) proposed a diathesis-stress model to explain sex differences in the emergence of depression. As discussed previously, they concluded that the factors causing depression in boys and girls are the same (i.e. responding with rumination to sadness); however, these risk factors are already more common in girls than in boys before early adolescence (Nolen-Hoeksema & Girgus, 1994). They also suggest that depression does not emerge until these risk factors interact with new adolescent stressors and challenges.

To analyze this diathesis-stress model, another multiple regression was used. To test for possible moderating effects of sex and age, interactions of these variables with response styles were included in preliminary analyses. None of these interactions were significant indicating that the associations among stress, response styles and depressive symptoms did not differ by sex or age. Thus, to streamline the presentation of my results, the regression analyses are presented in Table 9 without sex and age without these interaction terms in the model. The dependent variable was Time 2 CDI. Time 1 CDI, and CHSres was entered into the first step. Time 1 CRISES rumination and Time 1 CRISES distraction were entered into the second step. The third step consisted of the Time 1 CRISES rumination X CHSres interaction and the Time 1 CRISES distraction X CHSres interaction.

As predicted, the CHS residual score predicted changes in Time 2 depressive symptoms (p<.001). In other words, both depressive symptoms at Time 1 and increases in stress predicted Time 2 depressive symptoms. Results indicate that children who experienced an increase in stress from Time 1 to Time 2 reported an increase in depressive symptoms. It is also worth noting that there was a marginally significant effect of rumination; children who ruminated tended to report a greater increase in depression relative to other children (p = .08). Contrary to my prediction, however, rumination did not interact with stress to predict increased depression over time. Interestingly, distraction did interact with stress to predict changes in depressive symptoms. A visual representation of the results of the Distraction X Stress interaction can be
seen in Figure 2. Distraction seemed to act as a protective factor. That is, among those children who experienced an increase in stress during the prediction interval, those with higher distraction scores reported lower levels of depressive symptoms than children with low Distraction scores. Distraction was unrelated to changes in depressive symptoms among children who experienced low stress during the prediction interval.
Although depression has been studied at length in children, theories are still being developed that try to account for sex differences that emerge in depression at adolescence. One theory that has been applied to explain sex differences in depression is the Response Styles theory. Proposed by Nolen-Hoeksema, this theory hypothesizes that one’s response to sadness will affect future levels of depressive symptoms. A lot of research has been conducted with response styles theory on adults (Nolen-Hoeksema, Parker, & Larson, 1994; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema, Morrow, & Frederickson, 1993), however, there have been a few recent studies that have tried to apply this theory to children. These recent studies (Abela et al., 2000; Abela et al., 2002; Ziegert & Kistner, 2002; Driscoll, 2004) have tested Nolen-Hoeksema’s theory of response styles, but inconsistent results have been found between studies, mainly in regard to sex differences and prospective associations of response styles with depressive symptoms. To add further to the confusion, studies testing response styles have consistently found a positive correlation between rumination and distraction (Abela et al., 2000; Ziegert & Kistner, 2002; Driscoll, 2004). The latter finding conflicts with response styles theory (i.e., by the inherent nature of these two response styles, one cannot simultaneously ruminate and distract) and with results of studies conducted with adolescents and adults in which rumination and distraction are either uncorrelated or inversely correlated (Nolen-Hoeksema, Grayson & Larson, 1999; Butler & Nolen-Hoeksema, 1994; Nolen-Hoeksema & Morrow, 1991).

The present study attempted to shed light on this unexpected finding. Two explanations for positive correlations between rumination and distraction in child samples were tested. One explanation for this finding is that response styles are not well-established and children lack consistent responses to sadness across situations. Alternatively, the unexpected correlation could be signaling a problem with the measures used to assess responses to sadness. To test these explanations, children’s response styles were assessed by asking them to respond to hypothetical situations that are likely to elicit sadness. When assessed in this manner, rumination and distraction are not positively correlated. Furthermore, there was evidence for consistent tendencies to ruminate or distract across the hypothetical situations. Taken together, these results suggest that response styles are established prior to adolescence and that positive correlations between rumination and distraction reported in prior research are best attributed to a problem with the developmental sensitivity of the most commonly used measures of children’s response styles. Next, the implications of my results for the assessment of children’s response styles and for response styles theory as an explanation of the emergence of sex differences in depression are discussed.

Assessment of Children’s Response Styles

Without determining that a response style is actually present at earlier stages of development, it is futile to continue testing Nolen-Hoeksema’s theory in child samples. Thus, examining possible explanations for the well replicated finding of positive correlations between rumination and distraction in child sample and determining the cross-situational consistency with which children respond to sadness is critical to this area of research. These results support the use of a measure of response styles that provides children with salient and specific situations when assessing their “typical” responses to sad feelings. There were a number of findings that offer support for the validity of the CRISES as a measure of children’s response styles. As already discussed, and in accord with response styles theory, rumination and distraction were uncorrelated at Time 1 and inversely correlated at Time 2. Children’s tendencies to ruminate or distract were consistent across hypothetical situations, indicating that children do have “styles”
of responding to sad feelings. Also consistent with the theory, rumination was associated with higher levels of depressive symptoms and distraction with lower levels of depressive symptoms.

Although test-retest reliability was positively significant, the magnitudes of these correlations fall within a small to medium range. If response styles are supposed to be a stable trait, one would expect to see a greater reliability between Time 1 and Time 2 scores. While retest reliabilities for CRISES seemed a little lower than perhaps expected, it is important to consider these results within the context of other findings of response styles as well as the prediction intervals that are being tested. Within the adult literature on response styles, the most commonly used measure is the Response Styles Questionnaire (RSQ). Most studies that report internal consistencies and retest reliabilities for validity support do so for the Ruminative Response Scale (RRS), the subscale for rumination of the RSQ. The retest reliability for the RRS over a 5 month interval period was found to be quite high (r=.80; Nolen-Hoeksema et al., 1994). However, with a longer testing period, such as 12 months, it is not surprising that the test-retest correlation of the RRS may be less strong (r=.67; Nolen-Hoeksema, Larson, Grayson, 1999). In child samples, using the CRSS twice within a 3-week period yielded retest reliabilities of r =.69 and r=.74 for rumination and distraction, respectively (Ziegert & Kistner, 2002).

Again, with a larger testing interval, test-retest correlations again may fall, as demonstrated in Driscoll (2004) where retest reliabilities for rumination and distraction were r = .54 and r=.55, respectively, over a period close to 9 months. It may then become more acceptable that retest reliabilities of r=.48 and r=.33 are considered good support of reliability for a testing period of 24 months. Also important to note is the reliability for the oldest age cohort. Test retest correlations for the oldest grade group for rumination and distraction, respectively, are r = .56 and r = .37. These results hint towards the possibility that response styles become more stable as children grow older and that the lower correlations are reflections of the instability of response styles at younger ages.

However, an alternative to looking at consistency across time to determine consistency is questioning whether response styles are more reliable across situation than time, especially during periods of development. It is possible that response styles can be stable (across situations) at one period in time, but as children grow, developmental factors can cause the response styles to change, thus resulting in weaker test-retest reliability than would be expected of a stable construct. An analogous situation can be observed with attributional styles and perceived competence of control. When constructing a measure of children’s perception of control, magnitudes of significant correlations as low as r = .32 were considered moderate test-retest reliabilities. It is worth noting that a possible confound can be the time interval between test periods. Some studies re-test after a period as short as 6 weeks, whereas others wait 17 months. It can be speculated that response styles, although consistent across situation, do change as children become more familiar with their environment and continue developing. The Children’s Attributional Style Questionnaire- Revised (CASQ-R) examines a similar type of cognitive coping strategy and was described as “fairly stable” with a test-retest reliability of r=.53 over a 6 month testing period (Thompson, Weiss, Nolen-Hoeksema, 1998). Even within response styles theory literature, the CRSS rumination and distraction subscales had test re-test reliabilities of r = .54 and r=.55, respectively and were considered high values (Driscoll, 2004). These correlations examine the consistency of response styles over time. With a time interval of 24 months between testing periods, it is plausible that some changes in their response to sadness have taken place (Connell, 1985; Weisz et al., 1993, Thompson et al., 1998).

**Implications for Response Styles Theory as an Explanation of the emergence of sex differences in depression**
Although the main impetus for testing response styles using CRISES was the positive correlation consistently found across different measures and studies, another reason for investigating alternative methods for assessing children’s response styles is inconsistent results pertaining to sex differences and prospective associations with depression. It was argued that if measures of response styles used in previous studies are insensitive to individual differences in children’s responses to sadness, a re-examination of sex differences and prospective associations with depression using the CRISES to assess children’s response styles might result in stronger support for the major tenets of response styles theory as it applies to explaining the emergence of sex differences in depression in adolescence. As it turns out, this re-examination yielded very little support for either of these tenets. Girls were not more likely than boys to ruminate in response to sadness for the full sample, however, sex differences in rumination were moderated by age. Although both boys and girls reported a decrease in rumination scores at older ages, boys showed a steeper decline. Over time, these results may widen the gap between boys and girls in rumination scores.

Relative to rumination, sex differences in distraction are less consistently reported. When differences are found, boys are more likely to distract than girls. Boys and girls did not differ in their use of distraction to cope with sadness at time 1 or time 2 of this study.

The other tenet of the response styles theory is that a ruminative response style is a diathesis that interacts with stress to result in increased risk of depression. This study did not find support for this: the interaction of rumination and stress was not predictive of increases in depressive symptoms over time. However, results suggest that distraction may serve as a protective factor against stress. For children who experienced increases in stress over the predicted intervals, those who endorsed more distraction responses reported lower levels of depressive symptoms than children who endorsed very few distracting items. It is also worth mentioning that there was a marginally significant effect of rumination on predicting Time 2 depressive symptoms. Perhaps because of a power issue, this sample size was not large enough to detect this effect as significant. Change in stress between Time 1 and Time 2 did predict Time 2 depressive symptoms.

Interestingly, Nolen-Hoeksema has hypothesized that the interaction of response styles with stress predicts changes in depressive symptoms, with the main focus of her theory being on rumination and how the interaction of rumination with other life stressors will cause an increase in depressive symptoms. However, in a child sample, there also seems to be an emphasis on distraction and the resiliency effects of this response style against pre-adolescent and adolescent stressors. This distinction is important since it highlights the need to examine effects of other response styles in children that may not necessarily be the focus of research in adults. This finding draws attention to the fact that well-supported adult theories may not be easily translatable and often require some modifications in order to make the adult theory informative to younger populations as well.

Limitations

Although the present study does yield interesting results, it is not without limitations. First, the participants in the study consisted of children from a community sample rather than children recruited from a clinical sample who have been diagnosed with depression or another mood disorder. Other studies that have found concurrent and predictive associations between response styles and depression (so that rumination predicted an increase in depressive symptoms in both adults and children) have used clinical samples (Segerstrom, Tsao, Alden, & Craske, 2000; Abela et al., 2002). Future research should use the CRISES measure to evaluate response styles in a clinical child sample. A plausible explanation is that rumination is more pronounced...
in individuals with clinically significant depression and can play a role in maintaining these symptoms. On a similar note, there may not have been enough power in this study to detect whether smaller effects could be found in a community sample, with participants who exhibit subthreshold symptoms (Driscoll, 2004).

Other methodological issues that could limit the strength of these results is the use of only one measure for the construct of interest, CRISES. Multiple measures of response styles would strengthen this area of research and could perhaps identify possible latent variables that can be involved. It is also worth mentioning that the self-report method used with all three measures is another limitation of this study. The use of clinical interviews or parent-teacher reports could help to reduce the possibility of mono-method bias and shared method variance. However, this is not a main concern since previous research has shown that parent and teacher reports of internalizing symptoms (such as depression and rumination) are unreliable in comparison to child self-report of these same symptoms (Ohannessian, Lerner, Lerner & von Eye, 2000). In addition, as addressed previously, the interpretation of the low magnitude of the test-retest correlations can be challenging since this study could not determine whether this was due to a problem with the measure or if the correlations were a reflection of response styles being unstable.

The use of one measure for depressive symptoms and one for childhood stressors is another limitation of this study. Although the CDI is a well-established measure, the scores obtained from this measure can be representative of general negative affect. It would be informative to use a measure that could provide scores that reflect specificity of outcome. It has also been found that much of the variance in CDI scores can be accounted for by third party variables (40% of variance on CDI scores were accounted by perception of control; Weisz et al., 1993). Also, the CHS, the measure used as a stress index, does not provide a full list of possible challenges that preadolescence encounter during the developmental period that this sample was tested. A measurement of broader categories of stress, such as body dissatisfaction, popularity, sexual abuse, parental and peer expectations, etc., should be included, an issue that Nolen-Hoeksema proposed early on. It has been shown that age and gender affect the type of stress one is most likely to experience (Rudolph & Hammen, 1999). For example, adolescent girls experience the highest levels of interpersonal stress and independent stress within the family context, while adolescent boys report the highest levels of stress come from noninterpersonal stress associated with self-generated events. Future studies could look at the differential impact or cumulative effects of these stressors and determine whether an interaction with rumination can better explain the emergence of sex differences in depression (Driscoll, 2004).

**Future Directions**

It is worth considering that the response styles theory may be in need of revision. Research of this type has already been explored, with the findings of Treynor, Gonzalez, and Nolen-Hoeksema (2003). Further analyses of the original adult response style measure supports a two-factor model of rumination, consisting of reflection and brooding. Reflection was defined as consciously turning inward and brainstorming effective problem solving that could alleviate symptoms of depression while brooding was described as a more “passive comparison of one’s current situation with some unachieved standard” (p. 256) and was found to differentially predict depression. Treynor et al. (2003) considered reflection to be adaptive because it was associated with less depression over time, a protective relationship usually linked with distraction. They hypothesized that reflection might act as a protective factor by using effective problem solving to reduce negative affect. This issue of reflection is similar to a mindful acceptance of one’s
situations, where one would mindfully accept what they are feeling and simply attribute the results to benign causes.

It can also be argued that, not only brooding, but actual distraction can be negatively associated with mental health. Although brooding may lead to actual symptoms of depression, distraction leads to other unfavorable results. Distraction provides the individual with an illusion of mental health. Outwardly, people who constantly distract seem healthy, but they may not be aware that their physical health may be in danger (Nezu, Nezu, & Jain, 2005; Farley, Galves, Dickinson, & de Jesus Diaz Perez, 2005).

Future studies should use CRISES with children of a wide range of ages to get a better idea of the developmental progression of response styles and determine that if changes do occur across time in terms of responses to sadness, which developmental factors may account for these changes to take place. These studies could also incorporate the findings of Treynor et al. (2003) and test different types of rumination by creating vignettes that would address reflection.

It is also important to keep in mind that response styles may not be the sole factors accountable for sex differences in depression. There are various cognitive coping strategies that can be further evaluated in terms of their associations with depressive symptoms and their association with males and females. Hankin and Abramson (2001) propose an elaborated cognitive vulnerability-transactional stress theory that incorporates multiple negative cognitive vulnerabilities to depression (including rumination) as well as other disciplinary approaches (interpersonal theories of depression). Based on results from various studies, they speculate that sex differences in the emergence of depression can be explained through specific mechanisms in their causal chain where girls show elevations relative to boys. Their framework is based on previous research that has found sex differences in negative events, initial negative effect, and negative inferential style, all factors in their depressogenic causal chain (Hankin & Abramson, 2001). These results suggest that it may be combination of multiple coping strategies that can help increase one’s vulnerability to depression, not just rumination. Future studies should examine the differential effects of these coping tactics on the onset, duration, and intensity of depression as well as their interactions with interpersonal factors and different stressors that may help identify causal pathways explaining sex differences in the emergence of depression.

Conclusions

This study set out to test whether CRISES was a more sensitive measure of response styles and was also the first study to establish the consistency of response style to sadness in children across different situations. With the disappearance of the positive correlation between rumination and distraction, the comparable stability of responses over time and situations, and the current associations with depressive symptoms, CRISES seems to be a promising measure of children’s response styles. However, overall, this study failed to offer support for Nolen-Hoeksema’s response styles theory of depression in children. Although other groups have not found sex differences in rumination and distraction, they have found predictive associations between response styles and depressive symptoms. Even with the use of a new measure, this study still leaves us with the problem of inconsistency of results in regards to the response styles theory. A significant contribution of this study is identifying the fallibility of the response style theory and illuminating ways to move forward in theorizing factors that might explain the emergence of sex differences. By providing precision to a revised theory, research may lead to a theory that can account not only for emergence of sex differences in depression, but the maintenance of these symptoms in adulthood. Nevertheless, there is a vast amount of research to be done to move forward in reformulating the effects of various types of response styles and
their interaction with other factors to achieve confidence in a developmentally sensitive model that is also consistent with a developmental psychopathological perspective.
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</table>

** Correlation is significant at the 0.01 level (2-tailed).

### Table 6
**Correlations of Mean Distraction Across Situations**

<table>
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<th>mean dist #4</th>
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** Correlation is significant at the 0.01 level (2-tailed).
Table 7
Hierarchical Regression Analysis Examining Sex and Age Differences in Response Styles

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<th>Variable</th>
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<th>β</th>
<th>Sig.</th>
<th>ΔR²</th>
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<td>Step 1</td>
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<td>.08***</td>
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<td>.01</td>
<td>.85</td>
<td>.07***</td>
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<td>.00</td>
<td>-.27***</td>
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<td></td>
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<td>.02*</td>
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<td></td>
<td></td>
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<tr>
<td>Step 1</td>
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<td></td>
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<td>.06***</td>
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<td>.06</td>
<td>-.24***</td>
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</table>

Note. CRISES = Children’s Response to Imaginal Situations that Elicit Sadness, CDI = Children’s Depression Inventory, RUM = Rumination, DIS = Distraction, T1 = Time 1
*p < .05, **p < .01, ***p < .001.
Table 8  
Hierarchical Regression Analysis Examining Concurrent Associations of Response Styles with Depressive Symptoms.

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<td>.11***</td>
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<td>-.22***</td>
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Note. CRISES = Children’s Response to Imaginal Situations that Elicit Sadness, CDI = Children’s Depression Inventory, RUM = Rumination, DIS = Distraction, T1 = Time 1  
*p < .05, **p < .01, ***p < .001.
<table>
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Note. CRISES = Children’s Response to Imaginal Situations that Elicit Sadness, CDI = Children’s Depression Inventory, CHSres = Children’s Hassles Scale residual score, RUM = Rumination, DIS = Distraction, T1 = Time 1, T2= Time 2

*p < .05, **p < .01, ***p < .001.
Figure 1. Interaction between Distraction and Age
Figure 2. *Interaction between Stress and Distraction*
Figure 3. Interaction between Sex and Age for CRIES Time 1 Rumination.
Table 10
*Convergent and Divergent Validity of the CRSS*

<table>
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Table 11
*Correlations between Response Styles and Depressive Symptoms*

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** * p < .01; * p < .05
Table 12

**Correlations Between Time 1 and Time 2 CRSS**

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<td>.41**</td>
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<td>.25*</td>
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</tr>
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<td>---</td>
<td>.43**</td>
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<tr>
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<td>.32**</td>
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</table>

Note. Entire sample below the diagonal; 2nd/3rd graders above. T1 = Time 1; T2 = Time 2; CRSS = Children’s Response Styles Scale, RUM = Rumination, DIS = Distraction, T = Time.
* p < .05, ** p < .01

<table>
<thead>
<tr>
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<th>4</th>
</tr>
</thead>
<tbody>
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<td>.56**</td>
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<td>2. CRSS DIS T1</td>
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<td>.20*</td>
<td>.49**</td>
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<td>3. CRSS RUM T2</td>
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<td>.17</td>
</tr>
<tr>
<td>4. CRSS DIS T2</td>
<td>.13</td>
<td>.43**</td>
<td>.32**</td>
<td>---</td>
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</table>

Note. The data in Table 12 are from “Children’s Response Styles and Risk for Depression and Anxiety: Developmental and Sex Differences” by K. A. Driscoll, 2004, Unpublished doctoral dissertation, Florida State University. 4th/5th graders below the diagonal; 6th/7th graders above. CRSS = Children’s Response Styles Scale, RUM = Rumination, DIS = Distraction, T1 = Time 1; T2 = Time 2.
* p < .05, ** p < .01
APPENDIX B

Table 13
*Time 2 Internal Consistencies for rumination by sex and grade.*

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>2nd/3rd gr.</th>
<th>4th/5th gr.</th>
<th>6th/7th gr.</th>
<th>Overall</th>
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<td>.91</td>
<td>.91</td>
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<td>.90</td>
<td>.91</td>
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<td>.84</td>
<td>.87</td>
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Table 14
*Time 2 Internal Consistencies for distraction by sex and grade.*

<table>
<thead>
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<th></th>
<th>Boys</th>
<th>Girls</th>
<th>2nd/3rd gr.</th>
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<th>6th/7th gr.</th>
<th>Overall</th>
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<td>.88</td>
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<td>6 mean item alpha</td>
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<td>.84</td>
<td>.85</td>
<td>.86</td>
<td>.84</td>
<td>.85</td>
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</table>
APPENDIX C
Children’s Responses to Imaginal Situations that Elicit Sadness (CRISES)

Pretend that your class is going to have a test. You study really hard for the test. Your teacher gives you the test and you begin to work on it. After it’s over, your teacher grades it and hands back your paper. You didn’t do very well on it!

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

1. When they do poorly on a test, 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 a pet that you love a lot. You’ve had the pet since you were little. You take care of the pet and play with it. One day, your pet looks sort of strange. You and your parents take your pet to the doctor. The doctor says your pet is sick and he/she needs some medicine. You’re not sure if your pet will get better.

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

1. When their pet dies, 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 are playing on the playground at school in your neighborhood. You and the other kids are having a lot of fun. Everyone is getting along really well. Then, another kid starts teasing you and saying mean things to you.

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

1. When another kid teases them and says mean things to them, 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 the kids in your class are talking about a friend’s birthday party, which is coming up soon. They all say it’s going to be fun. You wait and wait for the invitation all week, but you never get one. When you come back to school after the party, the other kids are talking about how much fun they had.

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

1. When they’re not invited to a party, 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 you and your friend have been best friends for a long time. You have sleep-overs, you walk to school together everyday, and you share important secrets with each other. One day your best friend tells you that her parents decided to move to California. You don’t know when you will be able to see your best friend again. You will miss your best friend a lot.

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

1. When their best friend moves far away, 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 you and your family have been planning a trip to Disney World for your birthday. The night before your family is supposed to leave, you come down with the chills and a terrible cough. The next morning you wake up with a fever. Your parents tell you that the trip will have to be rescheduled because you don’t feel well. You don’t know when your family will be able to go again.

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

1. When they can’t do something because they are sick, 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
REFERENCES


BIOGRAPHICAL SKETCH
Curriculum Vitae

Personal Data
Name: Cristina M. Lopez

Date & Place of Birth: May 11, 1981; Miami, Florida

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August 2005 – present Teaching Assistant, Florida State University; Research Assistant, Arthur G. Dozier School for Boys, Marianna, Florida; Delores Auzenne Fellow, Florida State University

August 2004 – July 2005 Presidential Fellow, Florida State University

August 2002 – May 2003 Research Assistant, Washington University in St. Louis

Education
2006 – present Florida State University, Doctoral student
Major field: Clinical Psychology
Major Professor: Janet Kistner, Ph.D.

2004 - 2006 Florida State University, M.S.
Major field: Clinical Psychology
Major Professor: Janet Kistner, Ph.D.
Title of thesis: Assessment of Children’s Response Styles: An Examination of Sex Differences, Stress Interactions, and Depressive Symptoms.

2000 - 2004 Washington University in St. Louis, With Honors.
Major field: Psychology

Honors/Awards
Romero Scholarship, Washington University in St. Louis
Dean’s List Fall 2000, Spring 2001, Spring 2002, Fall 2003, Washington University in St. Louis
Presidential University Research Fellowship, Florida State University, 2004
Delores Auzenne Research Fellowship, Florida State University, 2005
University Research Fellowship, Florida State University, 2006

Publications

Buckner, J.D., Cromer, K., Merrill, K., Mallott, M.A., Schmidt, N.B., Lopez, C.M.,

**Posters Presented**


**Teaching Experience**

Undergraduate Teaching Assistant, Experimental Methods for Psychology, Washington University, Fall 2003.

Lab Instructor, Sensation and Perception, Florida State University, Fall 2005 (1 section).

Lab Instructor, Sensation and Perception, Florida State University, Spring 2006 (1 section).

Lab Instructor, Sensation and Perception, Florida State University, Summer 2006 (1 section).

**Clinical Experience**

Staff Psychotherapist, Florida State University Psychology Clinic, Tallahassee, Florida. Outpatient, individual psychotherapy using empirically-supported treatments. Supervisor: Norman B. Schmidt, Ph.D., August 2005 - present.

Resident Advisor, Washington University in St. Louis, St. Louis, Missouri. Livied in a dormitory and was responsible for 50 freshmen that were adapting to their new college environment. Training for this included attending weekly sessions where various psychological issues such as depression, eating disorders, substance abuse, and self-inflicted injury were discussed.

ABA Therapist, St. Louis County Special School District, St. Louis, Missouri. Use of Applied Behavior Analysis in the treatment of two four-year-olds with Autism. Received training and participated in monthly case meetings related to the development of behavioral interventions. Implemented behavior programs targeting enuresis and encopresis as well as other disruptive and externalizing behaviors. Supervisor: Bess Puvathingal, August 2002-May 2003.