

Rumination and Excessive Reassurance Seeking: Investigation of the Vulnerability Model and Specificity to Depression

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Recent research investigating cognitive and interpersonal models of depression have conceptualized rumination and excessive reassurance seeking (ERS) as vulnerabilities for the etiology of depression. However, research testing the vulnerability hypothesis for these constructs among youth is lacking. Additionally, the specificity of rumination and excessive reassurance seeking to depression is unclear. Two studies investigated associations between these constructs to depression and anxiety. In Study 1, concurrent associations between these constructs and depressive and anxious arousal were examined among 194 minority, underserved youth. Study 2 examined concurrent and longitudinal associations between both constructs and depressive and general anxiety symptoms in a community sample of 402 youth. Results from both studies supported rumination as a specific vulnerability for depressive symptoms, whereas ERS appeared to be a concomitant of negative affect common to depressive and anxiety symptoms. Findings inform cognitive and interpersonal theories of depression by advancing knowledge of how rumination and ERS relate to aspects of internalizing problems among diverse populations of youth.

Early adolescence is an important developmental period that marks the emergence of a dramatic increase in depressive symptoms (Hankin & Abramson, 2001). Underserved, minority adolescents may be at an even greater risk for depressive symptoms, although there is still little known about internalizing symptoms among minority

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youth (Anderson & Mayes, 2010). Furthermore, depressive symptoms often co-occur with other symptoms of psychopathology, such as anxiety (Angold, Costello, & Erkanli, 1999). It is therefore important to identify risk factors for depressive symptoms and understand how they relate to both depressive and co-occurring symptoms among underserved minority adolescents, as well as among predominantly white populations of youth.

It is well documented that both cognitive and interpersonal factors are operative in depression (Gotlib, 1992). Rumination and excessive reassurance seeking (ERS) are two risk factors that have been identified by cognitive and interpersonal theorists respectively. Theories of both ERS and rumination posit that these constructs are processes that maintain and exacerbate pre-existing depressive symptoms. Specifically, interpersonal theories of depression (Coyne, 1976; Joiner, Alfano, & Metalsky, 1992) propose that dysphoric individuals excessively seek reassurance about whether they are loveable and worthy in response to their dysphoria, which over time elicits rejection from others. Rejection in turn maintains and exacerbates initial depressive symptoms. Similarly, Nolen-Hoeksema's (1991) response styles theory proposes a maintenance and exacerbation model in which individuals that engage in ruminative responses to depressive symptoms amplify and extend depressed moods.

However, in contrast to a maintenance and exacerbation model, many studies of both ERS and rumination have conceptualized these constructs as vulnerabilities that have a direct effect on the development of depressive symptoms (e.g., Abela, Brozina, & Haigh, 2002; Nolen-Hoeksema, Stice, Wade, & Bohon, 2007), or the onset of new major depressive episodes (e.g., Abela & Hankin, 2011; Joiner, Metalsky, Gencoz, & Gencoz, 2001; Nolen-Hoeksema, 2000). In other words, these studies have proposed a vulnerability, or predisposition model, in which these processes are posited to have a main effect on the etiology of depression. However, there is relatively little research among youth examining whether these constructs directly predict later depressive symptoms. The first aim of the following studies is based on the underlying importance of testing the vulnerability model among youth because they are less likely to have experienced prior episodes of depression compared with adults.

The second aim of the current research is to investigate the specificity of ERS and rumination to depressive symptoms compared to other comorbid symptoms. This question remains relatively unexplored, and previous research investigating the specificity of risk factors for disorders in youth generally has failed to control for co-occurrence among symptoms (Shanahan, Copeland, Costello, & Angold, 2008). Finally, associations among rumination, ERS, and internalizing symptoms are understudied among diverse populations. Thus, our third aim was to examine associations among ERS, rumination, depressive symptoms, and anxiety symptoms in two different samples: one which is a largely minority, underserved sample, and the other a predominantly White community sample.

Rumination

A significant number of cross-sectional studies show that rumination is a correlate of depressive symptoms, and several studies show that depressed individuals reported higher levels of rumination than healthy individuals (Thomsen, 2006, for review). Cross-sectional designs are an important first step to testing a vulnerability, or predisposition model, but such a design does not preclude other alternative models, such as

a concomitants model, in which rumination would be state-dependent and influenced by an individual's mood state. Therefore, rumination might occur only during the presence of depressive symptoms or a clinical episode, and then may disappear after depressive symptoms decrease.

Longitudinal studies are a more stringent test of the vulnerability model because they provide information about temporal sequencing. However the majority of longitudinal research on rumination has been conducted among adults, which is problematic given that most individuals experience first onsets of depression during adolescence (Hankin et al., 1998). To date, a nascent body of research among youth suggests a direct effect of rumination on later depressive symptoms (e.g., Abela & Hankin, 2011; Nolen-Hoeksema, Stice, Wade, & Bohlen, 2007). The current investigation provides a more rigorous test of the vulnerability model by controlling for comorbid symptoms.

Excessive Reassurance Seeking

A number of cross-sectional studies show that ERS is concurrently linked to both depressive symptoms and clinical diagnoses of depression (e.g., Joiner et al., 1992; Joiner & Metalsky, 1995; Joiner & Metalsky, 2001). A few studies among adults also demonstrate that ERS longitudinally predicts depressive symptoms (see Starr & Davila, 2008). Only two known youth studies have investigated the prospective association between ERS and depressive symptoms (Abela, Zuroff, Ho, Adams, & Hankin, 2006; Prinstein, Borelli, Cheah, Simon, & Aikins, 2005), and both found that ERS predicted depressive symptoms in interaction with stressors. Therefore, it is unknown whether ERS has a direct effect on the development of depressive symptoms among youth.

Theory on Structural Model of Internalizing Symptoms

It is well documented that ERS and rumination are associated with depressive symptoms, yet their relation to other aspects of internalizing problems is less clear. Theory on the underlying structure of emotional disorders maintains that depression shares similarities with anxiety, which explains the high co-occurrence among these disorders (Mineka, Watson, & Clark, 1998). Clark and Watson's (1991) tripartite model states that negative affect underlies depression and anxiety, and thus serves as a higher order factor linking these disorders together. While low positive affect is specific to depression, anxiety is differentiated from negative affect and depression by physiological symptoms of anxious arousal. Accordingly, vulnerabilities shown to correlate with depressive symptoms may also be associated with general anxiety symptoms due to shared negative affect.

Very few studies of youth have examined the specificity of rumination and ERS to depression. Hankin (2008a) found in a sample of 6th to 10th graders that rumination predicted prospective elevations in general internalizing symptoms as well as depressive symptoms, but did not predict prospective changes in anxious arousal. In regards to ERS, one study of youth psychiatric inpatients showed that depressed patients exhibited higher levels of ERS than patients with externalizing disorders (Joiner et al., 2001; Study 2). Yet, this study does not rule out the possibility that ERS is associated with anxiety. Given that individuals with anxiety disorders often seek reassurance

excessively (Parrish & Radomsky, 2010), it is plausible that ERS is also a vulnerability for the development of anxiety symptoms. On the other hand, anxiety-related reassurance seeking is thought to be about safety-related information relevant to perceived threats (Parrish & Radomsky, 2010), whereas depression-related ERS is posited to be specifically about one's self-worth (Joiner et al., 1992). Therefore, it is unclear how ERS, as defined in the depression literature, may relate to anxiety symptoms.

Only a couple of studies among youth have controlled for co-occurring symptoms when examining rumination as a predictor of aspects of internalizing symptoms, and both used cross-sectional designs (Harrington & Blankenship, 2002; Muris, Fokke, & Kwik, 2009). We are not aware of any studies of ERS among youth that have controlled for co-occurring symptoms. Therefore, by taking into account comorbid depressive or anxiety symptoms, the current studies make an important contribution to knowledge of the role of ERS and rumination as specific risk factors for depressive symptoms, versus transdiagnostic predictors of general internalizing symptoms.

Multicultural Perspectives

Initial studies have documented higher rates of internalizing disorders in minority populations (Anderson & Mayes, 2010), but little is known about what types of risk factors are salient for youth from diverse populations. The preponderance of youth vulnerability research has been conducted among White, middle class populations. An important next step is to determine the universality of these vulnerability factors to youth from diverse cultural and socioeconomic backgrounds. The current investigation seeks to advance understanding of the role of cognitive and interpersonal risk factors for internalizing symptoms among minority youth. Specifically, Study 1 tests the hypothesis that rumination and ERS are specific risk factors for depressive symptoms among a community sample of mostly African American, underserved youth.

STUDY 1

This study was designed as a test of the following: (a) to examine whether ERS and rumination are concurrently associated with depressive symptoms, (b) to explore the specificity of ERS and rumination to depressive symptoms compared to anxious arousal, which is thought to be specific to anxiety, and (c) to investigate these associations in a community sample of minority, underserved youth.

Method

Participants. Sixth grade adolescents were invited to participate through middle schools in South Carolina as part of a study on cognitive and interpersonal risks for depression among minority, underserved youth during the transition to adolescence. Inclusion criteria for schools required that at least approximately 50% of students were ethnic minorities, and/or at least approximately 50% of students were on free or reduced lunch. Approximately 57% of all invited 6th grade students participated in the study. One hundred and ninety-four participants completed measures on rumination, excessive reassurance seeking, anxious arousal symptoms, and depressive symptoms.

The age range was 10–13 ($M = 11.36$); 56% were female, and 75.3% were African American. A total of 71% of the final sample qualified for free or reduced lunch.

Procedure. Questionnaires were administered in the schools by a trained measurement team as part of one 45-minute session. All parents/guardians completed an IRB approved parental consent form, and all participants completed an IRB approved assent form. Participants received a \$5 gift-card incentive for completing assessments.

Measures. Depressive symptoms were assessed by the Children's Depression Inventory (CDI; Kovacs, 1992). The CDI is a 27-item self-report measure that assesses depressive symptoms in children and adolescents. Each item is rated on a scale from 0–2 and reported scores are the sum of all items. Higher scores indicate higher levels of depressive symptoms. The CDI has good reliability and validity in youth (Klein, Dougherty, & Olino, 2005). Internal consistency (α) was .85 in this study.

Anxious arousal symptoms were measured by the Mood and Anxiety Symptom Questionnaire (MASQ; Watson, Weber et al., 1995). The MASQ for this study was shortened from the original version which contains 90 items designed to assess general distress, specific anxiety (anxious arousal), and depressive symptoms based on the tripartite theory of anxiety and depression (Clark & Watson, 1991). For this study, only the Anxious Arousal (ANXAR) subscale was used. The subscale included 10 ANXAR items on a Likert scale from 1 to 5. Reliability and validity of this shortened 10-item ANXAR has been demonstrated in previous studies (e.g., Hankin, 2008a). Internal consistency was $\alpha = .87$ in this sample.

A modified version of The Children's Response Style Questionnaire (CRSQ; Abela, Rochon, & Vanderbilt, 2000) was used to assess rumination. The CRSQ is based upon the Response Styles Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991), and assesses three general response styles of rumination, distraction, and problem solving. In this study, we used a 10-item version of the original 13-item Rumination subscale. Youth were asked to rate how frequently they respond to a sad mood with the rumination response style on a Likert scale from 0 to 4. The scale has been shown to be valid and have moderate internal consistency (Abela et al., 2002). Internal consistency was $\alpha = .86$.

Finally, the Child Excessive Reassurance Seeking Scale (CRSS; Joiner, 1999) is the child version of the Reassurance Seeking Scale (RSS; Joiner & Metalsky, 1995, 2001). It is a 4-item measure consisting of questions assessing how frequently youth request excessive reassurance from others. Respondents rate each item on a 3-point scale (0–2), and item scores were summed. Previous research has demonstrated strong validity for this measure, including good concurrent and discriminant validity (Abela et al., 2005; Joiner et al., 2001). Given that a substantial portion of youth scored a 0 (56%), the CRSS was dichotomized to account for the high frequency of 0 scores (where 1 = any score greater than 0). Internal consistency was $\alpha = .76$, consistent with prior research (Joiner, 1999; Joiner et al., 2001).

Data Analytic Plan

Regressions were used to examine whether ERS and rumination were concurrently associated with depressive symptoms and anxious arousal. Two separate regressions were used to examine the association between each risk factor and depressive symptoms while controlling for anxious arousal. Anxious arousal was entered in the first step,

TABLE 1. Means, Standard Deviations, and Bivariate Associations Among Primary Variables in Study 1

Variable	1	2	3	4
1. Rumination	—			
2. ERS	.22**	—		
3. Depressive symptoms	.23**	.26**	—	
4. Anxious arousal	.18*	.21**	.53**	—
<i>M</i>	22.47	.44	9.65	18.02
<i>SD</i>	8.53	.50	7.12	7.18

Note. * $p < .05$, ** $p < .01$.

and the risk factor of interest was entered in the second step. To examine specificity to depressive symptoms, two more separate regressions were used to investigate the association between each risk factor and anxious arousal while controlling for depressive symptoms. Again, depressive symptoms were entered in the first step, and the relevant risk factor was entered in the second step.

Results and Discussion

Table 1 shows descriptive statistics and bivariate associations in Study 1.

As can be seen in Table 2 (top half), both ERS and rumination were associated with depressive symptoms, even after controlling for anxious arousal. These findings support ERS and rumination as correlates of depressive symptoms. Table 2 (bottom half) shows that both ERS and rumination were not significantly associated with anxious arousal symptoms after controlling for depressive symptoms. These findings suggest that both these constructs may be more specific to depressive symptoms. Consistent with these findings, Hankin (2008a) also found that rumination was associated with depressive symptoms and general internalizing symptoms, but not anxious arousal.

Conclusions. These results advance knowledge on ERS and rumination as risk factors for depressive symptoms and other co-occurring symptoms among predominantly minority, underserved youth. Consistent with what has been shown in White, middle class samples of youth, ERS and rumination were both concurrently associated with depressive symptoms. Analyses investigating the specificity of these factors to depressive symptoms show that ERS and rumination were not associated with anxious arousal. Further prospective studies are required to examine whether these associations are most consistent with a vulnerability model, or concomitants model.

STUDY 2

Study 2 was designed to replicate and extend Study 1. Specifically, the main goals of this study were: (a) to replicate the finding that ERS and rumination are concomitantly associated with depressive symptoms among a predominantly White, general community sample of youth, (b) explore whether ERS and rumination were associated with general anxiety symptoms, and (c) to provide a more stringent test of the

TABLE 2. Study 1 Regressions Predicting Concurrent Depressive and Anxious Arousal Symptoms from ERS and Rumination (Controlling for Comorbid Symptoms)

Predictor	ΔR^2	<i>b</i> (<i>SE b</i>)	β	<i>t</i>
Depressive Symptoms				
Anxious Arousal	.28	.50 (.06)	.50	8.06 ***
ERS	.02	2.13 (.89)	.15	2.41*
Model $R^2 = .30$, $F(2, 191) = 41.34$, $p < .001$				
Anxious Arousal	.28	.50 (.06)	.51	8.19***
Rumination	.02	.11 (.05)	.13	2.17*
Model $R^2 = .30$, $F(2, 191) = 40.60$, $p < .001$				
Anxious Arousal				
Depressive symptoms	.28	.51 (.06)	.51	8.06***
ERS	.01	1.19 (.91)	.08	1.31
Model $R^2 = .29$, $F(2, 191) = 38.50$, $p < .001$				
Depressive symptoms	.28	.52 (.06)	.52	8.19***
Rumination	.004	.06 (.05)	.07	1.07
Model $R^2 = .29$, $F(2, 191) = 38.11$, $p < .001$				

Note. * $p < .05$, *** $p < .001$.

vulnerability model by investigating whether ERS and rumination longitudinally predicted increases in depressive and anxious symptoms among youth.

Method

Participants. Youth were recruited by letters sent home to families with a child in 3rd, 6th, or 9th grades of public schools in New Jersey and Colorado. Approximately 60% of all youth who received an invitation letter participated in the study. The retention rate from baseline to follow-up was 87%. Only youth who completed assessments at both time points were included, resulting in a sample size of 402. Ages ranged from 8–15 ($M = 11.56$). Fifty-five percent were girls, and 28.3% were in 3rd grade, 36.4% were in 6th grade, and 35.3% were in 9th grade. Sixty-three percent of youth were Caucasian, 8% were African American, 10% were Latino, 4% were Asian/Pacific Islander, and 15% identified themselves as Other/Mixed Race. Median annual parental income was \$95,000, and 16% of the youth received free/reduced lunch at school. The present sample, drawn from the general community of youth, was representative of the broader population of the particular geographical areas from which the samples were drawn, in terms of socioeconomic status, and ethnicity.

Procedure. The parent and youth visited the laboratory for the baseline assessment. Parents provided informed written consent for participation of their child, and youth provided written assent. The initial baseline assessment consisted of a battery of questionnaires completed by youth. The baseline battery included measures of anxiety and depressive symptoms, as well as a measure of excessive reassurance seeking and rumination. A follow-up assessment occurred 3 months later to assess anxiety and depressive symptoms. Participants completed follow-up questionnaires either by phone, by mail, or on-line through a secure internet website, depending on their preference.

TABLE 3. Means, Standard Deviations, and Correlations Among Primary Variables in Study 2

Variable	1	2	3	4	5	6
1. Rumination	—					
2. ERS	.16**	—				
3. Baseline depressive symptoms	.49**	.14**	—			
4. Baseline anxiety symptoms	.35**	.22**	.26**	—		
5. 3 month depressive symptoms	.41**	.11*	.61**	.23**	—	
6. 3 month anxiety symptoms	.27**	.19**	.14**	.56**	.32**	—
<i>M</i>	25.95	.30	7.34	41.94	5.33	41.62
<i>SD</i>	5.87	.46	5.87	15.72	5.23	15.27

Note. * $p < .05$, ** $p < .01$.

The Institutional Review Boards approved all procedures. Participants were compensated \$20 for participation at baseline and \$10 at follow-up.

Measures. Depressive symptoms and excessive reassurance seeking were assessed by the same measures as described in Study 1 (CDI, CRSS, and CRSQ). Again, the CRSS was positively skewed with a substantial number of youth scoring a 0 (70%), so this measure was dichotomized as described in Study 1. In addition, the CRSQ-Rumination subscale used in this study consisted of the entire 13 items used in the original scale rated on a Likert scale from 1 to 4. The construct of general anxiety symptoms, which is thought to include negative affect common to anxiety and depressive symptoms, as well as anxious arousal, was measured by the Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, & Stallings, 1997). The MASC consists of 39 items on a Likert scale from 0 to 3. Reliability and validity of the MASC has been demonstrated in previous studies (e.g., March, Sullivan, & Parker, 1999; Muris, Merckelbach, Ollendick, King, & Bogie, 2002), and $\alpha = .89$ in the current study.

Data Analytic Plan

In order to investigate whether ERS and rumination are concurrent predictors of depressive symptoms in a predominantly White, community sample, regressions were conducted in the same way as in Study 1. However, symptoms of general anxiety replaced the variable of anxious arousal in these regressions. To test the vulnerability model, regressions were conducted separately for each risk factor in which depressive symptoms or general anxiety symptoms at follow-up were used as the dependent variable. To control for prior levels of depressive symptoms and co-occurring symptoms, baseline depressive and anxiety symptoms were entered as predictors in the first step, and the risk factor of interest was entered in the second step. A small proportion of participants were unable to complete all measures. Therefore, analyses were conducted on all measures available.

TABLE 4. Study 2 Regressions Predicting Concurrent Depressive and General Anxiety Symptoms from ERS and Rumination (Controlling for Comorbid Symptoms)

Predictor	ΔR^2	b (SE b)	β	t
Depressive Symptoms				
Anxiety Symptoms	.07	.09 (.02)	.23	4.64***
ERS	.01	1.26 (.64)	.10	1.96†
Model $R^2 = .08$, $F(2, 390) = 15.45$, $p < .001$				
Anxiety Symptoms	.06	.03 (.01)	.09	1.92
Rumination	.20	.35 (.03)	.48	10.42***
Model $R^2 = .26$, $F(2, 399) = 71.59$, $p < .001$				
Anxiety Symptoms				
Depressive symptoms	.07	.60 (.13)	.23	4.64***
ERS	.04	6.49 (1.67)	.19	3.89***
Model $R^2 = .10$, $F(2, 390) = 21.51$, $p < .001$				
Depressive symptoms	.06	.28 (.15)	.10	1.92
Rumination	.06	.59 (.11)	.29	5.41***
Model $R^2 = .13$, $F(2, 399) = 29.29$, $p < .001$				

Note. † $p = .05$, ** $p < .01$.

Results and Discussion

Table 3 shows descriptive statistics and correlations of main variables in Study 2.

Concurrent Associations between Risk Factors and Internalizing Symptoms. Results partially replicated Study 1. Specifically, rumination and ERS were associated with depressive symptoms even after controlling for concurrent anxiety symptoms, although ERS was only marginally associated with depressive symptoms (Table 4, top half). These findings provide support for concurrent associations between these risk factors and depressive symptoms. Findings showed that both ERS and rumination were associated with anxiety symptoms after controlling for concurrent depressive symptoms (Table 4, bottom half). Results suggest that ERS and rumination are concurrently associated with general anxiety symptoms.

Longitudinal Associations between Risk Factors and Internalizing Symptoms. Results showed that rumination longitudinally predicted increases in depressive symptoms, whereas ERS did not (Table 5, top half). These findings support rumination as a vulnerability for later depressive symptoms among youth, whereas ERS may only be concurrently associated with depressive symptoms. Results further showed that neither rumination nor ERS predicted general anxiety symptoms at 3 months after controlling for prior anxiety and depressive symptoms (Table 5, bottom half).

Conclusions. Findings in this study build on Study 1 and further advance knowledge on ERS and rumination as vulnerabilities for depressive and anxiety symptoms. Rumination and ERS are concurrently associated with general anxiety symptoms and depressive symptoms. Rumination appears to be a specific longitudinal predictor of depressive but not anxiety symptom, and ERS does not longitudinally predict later internalizing symptoms.

TABLE 5. Study 2 Regressions Predicting Prospective Depressive and General Anxiety Symptoms from ERS and Rumination (Controlling for Baseline and Comorbid Symptoms)

Predictor	ΔR^2	<i>b</i> (<i>SE b</i>)	β	<i>t</i>
3 month depressive symptoms				
Baseline anxiety symptoms		.03 (.01)	.08	2.02*
Baseline depressive symptoms	.39	.53 (.04)	.60	14.67***
ERS	.00	.05 (.47)	.01	.12
Model $R^2 = .39$, $F(3, 389) = 84.59$, $p < .001$				
Baseline anxiety symptoms		.01 (.01)	.04	.92
Baseline depressive symptoms	.38	.47 (.04)	.53	11.73**
Rumination	.01	.09 (.03)	.14	2.90**
Model $R^2 = .39$, $F(3, 398) = 85.873$, $p < .001$				
3 month anxiety symptoms				
Baseline depressive symptoms		.002(.11)	.001	.02
Baseline anxiety symptoms	.35	.56 (.04)	.58	13.33***
ERS	.00	1.73 (1.40)	.05	1.24
Model $R^2 = .35$, $F(3, 386) = 69.02$, $p < .001$				
Baseline depressive symptoms		-.07 (.12)	-.03	-.60
Baseline anxiety symptoms	.34	.54 (.04)	.56	12.87***
Rumination	.00	.15 (.09)	.08	1.58
Model $R^2 = .34$, $F(3, 394) = 68.85$, $p < .001$				

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

GENERAL DISCUSSION

Both ERS and rumination were originally proposed as maintenance and exacerbation factors for depression. Since then, more recent research on rumination and ERS has conceptualized these processes as vulnerabilities that contribute to the etiology of depression. Much of the support for this reconceptualization into a vulnerability model has been derived from adult samples. Moreover, the specificity of ERS and rumination to depression versus broad internalizing problems has been unclear, and most prior studies investigating this question have not provided a rigorous test by controlling for co-occurring symptoms. Thus, findings from this study inform cognitive and interpersonal theories of depression by clarifying concurrent and longitudinal associations between these constructs and aspects of internalizing symptoms among two samples of youth: a community sample of minority, underserved youth, and a community sample of predominantly White youth. Overall, results from both studies suggest that ERS and rumination are concurrently associated with depressive symptoms and general anxiety symptoms, but not anxious arousal. This suggests that these risk factors are concurrently linked to general negative affect, but not elements that are considered specific to anxiety. Furthermore, findings supported rumination as a vulnerability specific to depressive symptoms, but findings regarding ERS did not support the vulnerability model. This suggests that ERS is only a concomitant of nonspecific negative affect.

One of the primary aims of the current investigation was to investigate the role of ERS and rumination as risk factors for depressive symptoms among an understud-

ied population of minority youth. Findings from Study 1 supported the existence of these risk factors among diverse populations. Specifically, ERS and rumination were associated with depressive symptoms in a community sample of predominantly low-income, African-American youth, even after controlling for co-occurring internalizing symptoms (anxious arousal). This is consistent with findings from Study 2, as well as prior research, demonstrating associations between these risk factors and depressive symptoms in predominantly White samples (Hankin, 2008a; Joiner et al., 2001). Findings from Study 1 also showed that these constructs were not associated with symptoms of anxious/physiological arousal, which is thought to be specific to anxiety, among underserved, minority youth. However, it will be important for future research to determine whether these constructs are associated with general anxiety symptoms that includes negative affect common to depression and anxiety (as observed in Study 2) among diverse youth populations, or whether ERS and rumination are specific correlates of only depressive symptoms among minority youth.

Findings also advance knowledge on prospective associations between rumination and internalizing symptoms. Recent studies suggest that rumination prospectively predicts anxiety, internalizing symptoms, and broad negative affect (Hankin, 2008a; Nolen-Hoeksema et al., 2007; Roelofs et al., 2009), but rigorous examination of the specificity of rumination to aspects of internalizing symptoms in the current studies overall suggest that rumination is not a vulnerability for anxiety among youth. Hankin (2008a) found that rumination longitudinally predicted increases in general internalizing and depressive symptoms, but not anxious arousal among youth. Additionally, another study examining the association between rumination and anxiety that controlled for co-occurring depressive symptoms found that rumination did not prospectively predict anxiety symptoms among adults (Hong, 2007). Taken together, overall evidence suggests that rumination may be a vulnerability for depressive symptoms, but not for elements specific to anxiety (i.e., anxious arousal).

The results of these studies also contribute significantly to the current literature on the associations between ERS and internalizing symptoms by strongly supporting a concomitants model, rather than a vulnerability model. Specifically, findings support ERS as a concomitant of general negative affect (depressive symptoms and general anxiety), but not anxious arousal that is specific to anxiety. Research among adults has proposed that ERS might be an important interpersonal vulnerability specific to the development of depressive symptoms (e.g., Joiner & Metalsky, 2001). Yet these findings suggest that ERS does not contribute to the etiology of depressive symptoms among youth. Instead, consistent with a concomitants model, ERS is likely influenced by an individual's mood state and occurs contemporaneously with general negative affect. This would mean that dysphoric individuals are more likely to seek reassurance excessively when experiencing a negative mood, but excessive reassurance seeking may not predispose these individuals to later development of these symptoms. In support of ERS as a state-dependent construct, prior research has shown low stability for ERS across time points compared to other social-psychological constructs, which has led to some speculation that ERS is a reflection of temporary negative affect (Prinstein et al., 2005).

Although results from the current studies supported the vulnerability and concomitants model for rumination and ERS respectively, these findings do not preclude other models that may explain additional ways in which these constructs relate to depression and anxiety. Rumination has been shown to be associated with a past history of depression as well as future episodes among adolescents (Abela & Hankin, 2011).

Therefore, prior episodes of depression may lead to increases in ERS and rumination that predispose these individuals to future depressive episodes (i.e., scarring). Scarring processes may be why these constructs are associated with depressive symptoms among adults (Joiner, 2000; Nolen-Hoeksema, 2000).

Additionally, several recent studies support a vulnerability-stress model in which stress interacts with rumination among youth to predict depressive symptom (e.g., Abela & Hankin, 2011; Hankin, 2008a). Most studies of ERS find that it is associated with depressive symptoms only in interaction with other stressors (e.g., Abela et al., 2006; Prinstein et al., 2005), suggesting that although there may not be a direct effect of ERS on the development of depressive symptoms, ERS may still be considered a risk within a vulnerability-stress framework. If this is the case, then it will be important for vulnerability models of ERS to be revised to incorporate stress (Starr & Davila, 2008).

Although theories of ERS did not originally propose a vulnerability-stress model per se, the idea that ERS contributes to the development of depression only under conditions of stress may be in line with the initial concept of a maintenance and exacerbation model proposed by interpersonal theorists (Coyne, 1976; Joiner et al., 1992). For instance, negative events, interpersonal rejection, or other stress may evoke negative affect or dysphoria, which ERS then may serve to amplify and extend. Thus ERS may both be a concomitant of initial negative affect, and a moderator of these symptoms that serves to contribute to both the development and chronicity of depression (Joiner, 2000). It is also possible that ERS in interaction with stress longitudinally predicts anxiety symptoms, but this has yet to be explored in the literature. Similarly, rumination likely also moderates the effects of stress and internalizing symptoms (e.g., Abela & Hankin, 2011; Hankin, 2008a), but our findings as well as other studies posit that rumination also differs from ERS in that it is a less state-dependent, more stable vulnerability (Hankin, 2008b) that can also have a direct effect on the etiology of depressive symptoms.

Overall, the current studies have several strengths, including investigation of risk factors for internalizing symptoms in two different samples of youth, one of which is mostly comprised of minority youth, and the consideration of co-occurring symptoms. Yet, some limitations should be noted. Clinical levels of depression and anxiety were not assessed, so findings may not generalize to clinical populations of youth. Additionally, anxious arousal symptoms were examined in Study 1, and general anxiety symptoms were examined in Study 2, which limits comparisons of findings relating to anxiety across these different ethnic and socioeconomic samples of youth. Finally, a substantial portion of youth reported not engaging in ERS on our self-report measure (CRSS). Other studies among youth have also reported low levels of reassurance seeking (e.g., Abela et al., 2006). Our findings suggest that the presence of ERS is concurrently associated with higher levels of depressive and anxiety symptoms, consistent with the conceptualizing of ERS as a state-dependent construct. On the other hand, it is possible that the lack of variability in scores indicates a weakness of the CRSS measure, and that nonsignificant longitudinal findings were due to limited variability.

In sum, the current studies advance knowledge of risk factors for internalizing problems within a cognitive and interpersonal framework among diverse populations of youth. Findings provide an important step toward understanding specific etiological and maintenance processes for depression compared to anxiety which can help to inform more targeted prevention and intervention efforts.

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