

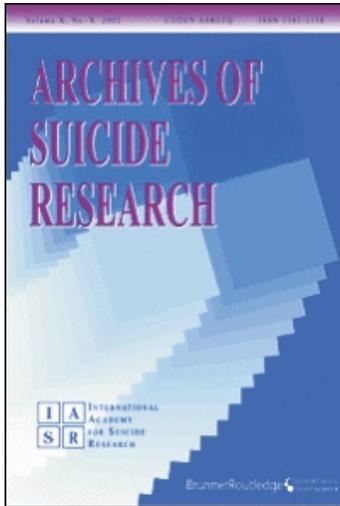
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Subtypes of Rumination in the Relationship Between Negative Life Events and Suicidal Ideation

Shirley Chan, Regina Miranda, and Katherine Surrence

The brooding and reflection forms of rumination were examined as mediators of the concurrent relationship between the impact of negative life events (INE), symptoms of depression, and suicidal ideation. An ethnically diverse sample of college undergraduates (N = 1,011) completed measures of negative life events and rumination, and they reported on their symptoms of depression and suicidal ideation. Brooding, but not reflection, partially mediated the INE-ideation relationship. Depression symptoms partially mediated the relationship between INE and suicidal ideation and between brooding and ideation. People who brood in response to negative life events may be vulnerable to thinking about suicide, partly due to symptoms of depression, but also as a result of brooding itself.

Keywords brooding, negative life events, reflection, rumination, suicidal ideation

Approximately 89 people commit suicide every day in the United States (Kung, Hoyert, Xu et al., 2008). A major task in suicide prevention involves identifying the precursors to suicide attempts and delineating how they combine to predict suicidal thoughts and behavior. Recent negative life events are an established risk factor for suicidal ideation, attempts, and completed suicide (Cooper, Appleby, & Amos, 2002; Crane, Williams, Hawton et al., 2007b; King, Schwab-Stone, Flisher et al., 2001; Sandin, Chorot, Santed et al., 1998; Vilhjalmsson, Kristjansdottir, & Sveinbjarnardottir, 1998; Yen, Pagano, Shea et al., 2005). For instance, a psychological autopsy study of 84 suicides and 64 non-suicide controls under age 35 in Manchester, England, found that suicide

was associated with the experience of negative life events in the 3 months preceding the suicide (and especially in the week preceding the suicide) (Cooper, Appleby, & Amos, 2002). A cross-sectional analysis of 1,285 9- to 17-year-olds found that, after adjusting for demographic characteristics, having experienced more than five negative life events in the previous 12 months more than doubled the odds of either reporting suicidal ideation in the previous 6 months or of ever having made a suicide attempt (King, Schwab-Stone, Flisher et al., 2001). However, the effect of stressors on suicidal ideation should be understood in conjunction with a consideration of individuals' cognitive response to those stressors (see Sandin, Chorot, Santed et al., 1998). How individuals respond to stress—rather than

the experience of stress on its own—impacts the onset of symptoms.

Cognitive models of suicide have identified a number of responses to stressors that may result in suicidal thoughts and behaviors (see Ellis, 2006). One that has been well-studied in relation to depression but has only recently received attention for its possible role in the onset of suicidal ideation and behavior is rumination (see Morrison & O'Connor, 2008). A tendency to ruminate in response to stressors—i.e., to repetitively focus on one's negative mood, on the reasons for one's mood, and on the potential implications of that mood—has been identified as a cognitive style that contributes to negative affect and depression (McLaughlin, Borkovec, & Sibrava, 2007; Nolen-Hoeksema, 1991, 2000; Robinson & Alloy, 2003). However, the impact of a ruminative response style on mood depends on the form that rumination takes. Researchers have investigated several ways to further specify the content of ruminative thought, and have examined the relationship of different kinds of content to depression and other outcomes (see Watkins, 2008, for a review). This study is concerned with one such distinction: that between rumination in its passive form—termed *brooding*—and rumination in its active form—termed *reflection* (Treyner, Gonzalez, & Nolen-Hoeksema, 2003). Examining how the subtypes of rumination contribute to suicidal thinking may further elucidate the nature of the relationship between negative life events, depression, and suicidal ideation, enabling clinicians to identify the most important areas for intervention.

Previous research suggests that people ruminate in response to negative life events (Robinson & Alloy, 2003) and that rumination partially accounts for the relationship between stressful life events and the experience of negative affect (Moberly & Watkins, 2008b), and for the relationship between chronic strain and depression

(Nolen-Hoeksema, Larson, & Grayson, 1999). For instance, longitudinal studies have found that participants who reported a ruminative response style were more likely to become depressed following bereavement (Nolen-Hoeksema, McBride, & Larson, 1997; Nolen-Hoeksema, Parker, & Larson, 1994). Rumination can magnify the impact of a negative life event by drawing repeated attention to problems and activating negatively biased thoughts in response to those problems (Lyubomirsky, Tucker, Caldwell et al., 1999; Smith, Alloy, & Abramson, 2006). Furthermore, rumination is associated—concurrently and prospectively—with suicidal ideation and behavior (Abramson, Alloy, Hogan et al., 1998; Eshun, 2000; Miranda & Nolen-Hoeksema, 2007; O'Connor & Noyce, 2008; Smith, Alloy, & Abramson, 2006; see Morrison & O'Connor, 2008, for a review). For instance, a prospective study found that rumination predicted both the presence and the duration of either suicidal ideation or an attempt over 2 $\frac{1}{2}$ years, and hopelessness partially mediated the relationship between rumination and the presence of ideation/attempts and fully mediated the relationship between rumination and the duration of suicidal thinking and behavior (Smith, Alloy, & Abramson, 2006).

Since the initial development of Nolen-Hoeksema's response styles theory, researchers have questioned whether rumination is a unitary construct that is uniformly maladaptive. Treyner et al. (2003) subjected the Ruminative Responses Scale to a factor analysis and found two factors—brooding and reflection. They define brooding as “a passive comparison of one's current situation to some unachieved standard” (p. 256), and reflection as “a purposeful turning inward to engage in cognitive problem solving to alleviate one's depressive symptoms” (p. 256). While both brooding and reflection were correlated with depression concurrently in

Treynor et al.'s analysis, depression scores were positively correlated with brooding longitudinally, but negatively correlated with reflection, suggesting the possibility that over time, reflection may be an adaptive form of rumination.

Further studies have replicated the findings that brooding is concurrently (Burwell & Shirk, 2007; Joormann, Dkane, & Gotlib, 2006; Siegle, Moore, & Thase, 2004) and longitudinally (Burwell & Shirk, 2007) associated with depression, but evidence about the relationship of reflection to depression and maladaptive outcomes is mixed. Burwell and Shirk did not find a longitudinal relationship between reflection and later depression, and some studies fail to find even a concurrent relationship between reflection and depression scores (e.g., Lo, Ho, & Hollon, 2008), or find an association that is no longer significant after controlling for brooding scores (Burwell & Shirk, 2007). In contrast, some replicate Treynor et al.'s finding of a concurrent association (Fresco, Frankel, Mennin et al., 2002; Joorman, Dkane, & Gotlib, 2006; Siegle, Moore, & Thase, 2004). However, a study of the effect of rumination on the experience of momentary negative affect failed to find either a concurrent or a prospective relationship between reflection and negative affect, though consistent with the research on the relationship between rumination subtypes and depression, brooding was both concurrently and prospectively related to negative affect (Moberly & Watkins, 2008a).

Recent research on rumination and suicide has cast doubt on the adaptiveness of reflection. Miranda and Nolen-Hoeksema (2007) found in a longitudinal study that both brooding and reflection were concurrently associated with depression and suicidal ideation, and that each subscale—adjusting for the other—prospectively predicted suicidal ideation after controlling for symptoms of depression and the presence of baseline ideation. Further,

while depression partially mediated the relationship between brooding and ideation, it did not mediate the relationship between reflection and ideation, suggesting different paths by which both subtypes of rumination influence suicidality. O'Connor and Noyce (2008), while replicating the finding of Miranda and Nolen-Hoeksema that brooding prospectively predicts suicidal ideation, did not find that reflection predicted ideation. However, they suggest that the lack of an observed statistical relationship may have been due to the smaller effect size of the relationship of reflection to ideation, and that Miranda and Nolen-Hoeksema's large data set allowed small effects to be detected. In contrast, Crane, Barnhofer, and Williams (2007a) found that in their community sample of formerly depressed individuals, participants with a history of suicidal ideation and attempts did not exhibit higher levels of brooding relative to never-suicidal participants, but did have reduced levels of reflection. They speculate that reflection is an adaptive, problem-solving oriented form of self-focused thinking, and deficits in reflection may be one cause of suicidal ideation.

The Present Research

The present study sought to examine whether brooding and reflection differentially affect the concurrent relationships between the impact of recent negative life events and symptoms of depression and suicidal ideation in a sample of college students. First, we sought to examine whether the impact of negative life events would be concurrently associated with the ruminative subtypes. Second, we sought to replicate Miranda and Nolen-Hoeksema's (2007) finding that both brooding and reflection were concurrently associated with depression and suicidal ideation. Further, we examined whether and to what extent

brooding and reflection mediate the relationship between negative life events and depression, and between negative life events and suicidal ideation. And finally, we sought to investigate whether and to what extent depression mediates the relationship between both rumination subtypes and suicidal ideation. Based on previous research, we hypothesized that both subtypes of rumination would mediate the relationship between negative life events and depression, and negative life events and ideation, but brooding more so than reflection. We further hypothesized that if brooding and reflection exerted an influence on ideation independently of depression's mediation, this effect would be stronger for brooding.

METHOD

Participants

College students ($N = 1011$) from a public university in the northeastern United States (mean age = 19.31, range = 18–53), recruited as part of a study of mental health symptoms experienced primarily by first- and second-year undergraduates, participated in this study in partial fulfillment of their Introduction to Psychology research requirement. The sample was ethnically diverse: 34% White, 18% Hispanic, 12% Black/Caribbean Islanders, 29% Asian/Pacific Islander, and 8% of other ethnicities.

Measures

Depression Symptoms and Suicidal Ideation. Depression and suicidal ideation were measured with the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001; see also Spitzer, Kroenke, Williams et al., 1999), a self-report form developed for depression screening as part of the Primary Care Evaluation of Mental

Disorders (Spitzer, Kroenke, Williams et al., 1999). The PHQ-9 assesses symptoms corresponding to a diagnosis of major depressive disorder using the criteria in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV; American Psychiatric Association, 1994). Items inquire about symptoms of depression, as experienced in the previous 2 weeks. Participants indicate for each of nine symptoms whether, during the previous 2 weeks, symptoms have bothered them from “not at all” (0) to “nearly every day” (3). Item 9 of the PHQ-9 inquires about suicidal ideation (i.e., . . . *thoughts that you would be better off dead or of hurting yourself in some way*). Total scores on items 1–8 ranged from 0 to 21, with an average of 6.63 ($SD = 4.29$). Responses to item 9 ranged from 0 to 3, with an average of .15 ($SD = .44$). The PHQ-9 is considered a reliable and valid screening measure for depression, with a test-retest reliability of 0.89 (Kroenke, Spitzer, & Williams, 2001). Cronbach's alpha in the present sample, both including and excluding the ideation question, was .80.

Negative Life Events. The Life Experiences Survey (LES) (Sarason, Johnson, & Siegel, 1978) is a 60-item measure that assesses the incidence of various life events (e.g., *death of a family member, new job*) in the previous 6 months or year. Ratings reflecting severity are made on a 7-point Likert scale ranging from *extremely negative* (–3) to *extremely positive* (+3). Only the severity rating of the impact of negative life events (INE)—computed by summing the ratings of events designated as negative (i.e., those rated between –3 and –1)—was examined, because it has been found to be more stable ($r =$ between .56 and .88) than the positive life events score ($r =$ between .19 and .53) (see Sarason, Johnson, & Siegel, 1978). Cronbach's alpha for the occurrence of life events on the LES was .80 in the present sample. Total scores of the impact of

negative life events ranged from 0 to 134 in the present sample ($M = 10.92$, $SD = 10.10$).

Rumination. Rumination was measured using the Ruminative Responses Scale (RRS) (Nolen-Hoeksema & Morrow, 1991) of the Response Styles Questionnaire (RSQ), consisting of 22 items assessing responses to depressed mood that are focused on the meaning, potential causes, and consequences of one's negative mood. Participants rated the degree to which they engaged in each response when in a sad or depressed mood on a Likert scale that ranged from 1 (*never or almost never*) to 4 (*almost always*). The RRS was scored by averaging participants' ratings of the subscale items, consistent with previous studies of rumination and suicidal thoughts or behaviors (Crane et al., 2007a; Miranda & Nolen-Hoeksema, 2007). The RRS has demonstrated good test-retest reliability $r = 0.80$ (Nolen-Hoeksema, Parker, & Larson, 1994), internal consistency ($\alpha = 0.89$), and validity in terms of predicting symptoms of depression (Nolen-Hoeksema & Morrow, 1991).

Five items of the RRS that characterize brooding (see Treynor, Gonzalez, & Nolen-Hoeksema, 2003) involve passive contemplation of the reasons for one's negative mood (e.g., *What am I doing to deserve this?*). Cronbach's alpha for the brooding subscale was .79 in the present sample, and scores ranged from 1 to 4 ($M = 2.19$, $SD = .71$). The five items that characterized the reflection subscale include questions that involve cognitive problem solving to alleviate one's depressed mood (e.g., *Analyze recent events to try to understand why you are depressed*). Cronbach's alpha for the reflection subscale was .73 in the present sample, and scores ranged from 1 to 4 ($M = 1.92$, $SD = .64$).

Procedure

After providing written informed consent, participants completed a packet that

included the above measures in groups of 2–8. After completing the questionnaires, participants were debriefed. Participants who indicated that they thought about hurting themselves “more than half the days” in the previous 2 weeks or who endorsed having been bothered by four or more symptoms on the PHQ-9 for more than half the days in the previous 2 weeks were provided with a referral to the college counseling center, and in some instances, were also contacted by R.M. through electronic mail to encourage them to visit the counseling center.

Data Analytic Plan

Correlational analyses examined the relationship among INE, the ruminative subtypes, depression symptoms, and suicidal ideation.¹ Three mediational hypotheses were tested via hierarchical linear regressions. The first was that brooding and reflection would mediate the relationship between INE and symptoms of depression. The second was that brooding and reflection would also mediate the relationship between INE and suicidal ideation. The third hypothesis was that symptoms of depression would mediate the relationship between the ruminative subtypes and suicidal ideation. Mediation was established using the guidelines provided by Baron and Kenny (1986), which require that the predictor variable (INE) be related to the mediator (e.g., brooding, reflection) and to the outcome variable (e.g., suicidal ideation), that the mediator be related to the outcome variable, and that adjusting for the mediator decrease the relationship between the predictor and the outcome. The relationship between the predictor and the outcome must approach zero in cases of complete mediation or must

¹The sample size for the correlations ranged from $N = 998$ to $N = 1009$, due to missing data. Analyses conducted using listwise deletion (with a total N of 995) yielded essentially the same correlations.

diminish significantly in the case of partial mediation. Sobel tests (see Sobel, 1982) were used to test the significance of the indirect effects of predictors and outcomes through the proposed mediators (Preacher & Leonardelli, 2001).

RESULTS

Correlation coefficients are presented in Table 1. Both brooding and reflection were positively associated with symptoms of depression and with suicidal ideation, and consistent with prior research, brooding had a stronger correlation than did reflection, $Z_{diff_dep} = 4.22, p < .01, Z_{diff_id} = 2.79, p < .05$. Furthermore, INE was equally and positively correlated with both brooding and reflection, $Z_{diff} = .60, p > .50$. It was also significantly and positively correlated with symptoms of depression and suicidal ideation, although its relationship to depression symptoms was stronger, $Z_{diff} = 5.27, p < .01$.

Four hierarchical linear regressions were conducted to examine mediational

hypotheses.² All analyses adjusted for demographic variables in the first block.³ In the first regression, INE was examined as a predictor of brooding, adjusting for reflection, and in the second, INE was examined as a predictor of reflection, adjusting for brooding. In both cases, INE predicted the ruminative subtypes (see left side of Figure 1). Next, depression score was regressed onto INE (second block) and the ruminative subtypes (third block), in order to determine whether INE predicted symptoms of depression, and to determine whether adjusting for the ruminative subtypes diminished the relationship between INE and depression (i.e., whether the ruminative subtypes mediated the relationship between INE and depression symptoms) (hypothesis 1; see Table 2a). The fourth regression examined whether the ruminative subtypes mediated the relationship between INE and suicidal ideation (hypothesis 2) and also whether depression mediated the relationship between the ruminative subtypes and ideation (hypothesis 3). Thus, a

TABLE 1. Correlations Among Study Variables

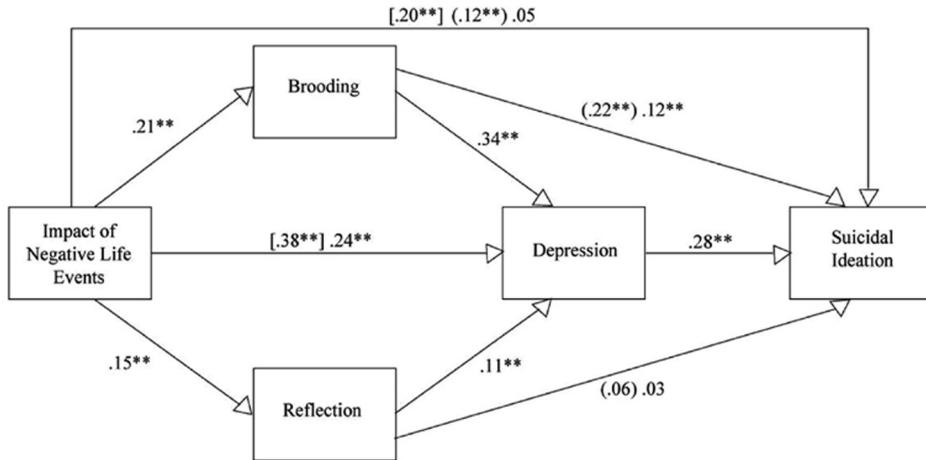
	1	2	3	4	5
INE	1				
Brooding	.30**	1			
Reflection	.28**	.45**	1		
Depression	.37**	.46**	.33**	1	
Ideation	.19**	.28**	.19**	.37**	1

* $p < .01$.

INE = Impact of negative life events, as measured by the summed total of the impact of negative events score on the Life Experiences Survey; Brooding = average score on brooding subscale of the Ruminative Responses Scale; Reflection = average score on reflective pondering subscale of the Ruminative Responses Scale; Depression = Depression symptoms, as measured by total score on the Patient Health Questionnaire -9 (PHQ-9), excluding the suicidal ideation question; Ideation = response on suicidal ideation question of the PHQ-9.

²The sample size for the regression analyses ranged from $N = 992$ to $N = 994$, due to missing data.

³All regression analyses adjusted for demographics due to statistically significant gender differences in impact of negative life events (INE), $t(998) = 3.03, p < 0.01$, reflection, $t(1006) = 3.65, p < 0.01$, and symptoms of depression, $t(1007) = 2.97, p < 0.01$, statistically significant ethnic differences in INE, $F(4,995) = 4.96, p < 0.01$ (with Blacks/Caribbean Islanders reporting greater impact of negative events when compared to Whites and Asian/Pacific Islanders, and with Asian/Pacific Islanders reporting significantly less INE when compared to Black/Caribbean Islander and Hispanic individuals (as per Bonferroni-corrected *post hoc* comparisons), and a small but statistically significant positive correlation between age and INE, $r(995) = .08, p < .05$. However, the basic direction of the findings would have remained the same without adjusting for demographics, with the exception that the strength of the relationship between INE and brooding and reflection, respectively, would have been higher [$\beta = .30$ (vs. $.21$) and $.28$ (vs. $.15$), respectively, before adjusting for demographics].



**p < .01. [] Prior to adjusting for brooding and reflection. () Prior to adjusting for depression. Analyses adjust for age, sex, and ethnicity.

FIGURE 1. Examining the mediating role of ruminative subtypes on the relationship between the impact of negative life events (INE), symptoms of depression, and suicidal ideation.

hierarchical multiple regression analysis was conducted in which demographics were entered in the first block of the analysis, INE was entered in the second block, brooding and reflection were entered in the third block, and depression symptoms were entered in the fourth block (see Table 2b). Findings from all four regressions are presented in Figure 1.

The Mediating Role of the Ruminative Subtypes (Hypotheses 1 and 2)

INE significantly predicted concurrent depression symptoms ($\beta = .38, p < .01$) and

suicidal ideation ($\beta = .12, p < .01$), after adjusting for demographic variables and for the ruminative subtypes. Brooding and reflection were both significant predictors of symptoms of depression, adjusting for INE, but brooding more so ($\beta = .34, p < .01$) than reflection ($\beta = .11, p < .01$). However, only brooding significantly predicted suicidal ideation (adjusting for INE and reflection), $\beta = .22, p < .01$; reflection did not (adjusting for INE and brooding), $\beta_{block3} = .06, p = .06$. The relationship between INE and depression symptoms decreased after adjusting for both brooding and reflection (β from .38 to .24, $p < .01$),

TABLE 2a. Hierarchical Linear Regression of Symptoms of Depression on Impact of Negative Life Events (INE), Brooding, and Reflection

Block	Variable	β_{block2}	β_{block3}	Partial r^+	Model F
2	INE	.38**	.24**	.26**	25.74**
3	Brooding		.34**	.33**	45.15**
	Reflection		.11**	.12**	

Analyses adjust for age, sex, and ethnicity. **p < .01
 β = standardized regression coefficient at each block.
⁺Refers to values in the final model.

TABLE 2b. Hierarchical Linear Regression of Suicidal Ideation on Impact of Negative Life Events (INE), Brooding and Reflection, and Symptoms of Depression

Block	Variable	β_{block2}	β_{block3}	β_{block4}	Partial r^+	Model F
2	INE	.20**	.12**	.05	.05	6.91**
3	Brooding		.22**	.12**	.11**	12.53**
	Reflection		.06	.03	.03	
4	Depression sx			.28**	.25**	18.58**

Analyses adjust for age, sex, and ethnicity. ** $p < .01$.

β = standardized regression coefficient at each block.

⁺Refers to values in the final model.

and the indirect relationship between INE and depression symptoms through brooding, $Z_{Sobel} = 5.89, p < .01$, and reflection, $Z_{Sobel} = 2.93, p < .01$, were both statistically significant. Thus, brooding and reflection both partially mediated the relationship between INE and depression (hypothesis 1) (see Table 2a). Brooding—but not reflection—also partially mediated the relationship between INE and suicidal ideation (hypothesis 2) (β from .20 to .12, $p < .01$; $Z_{Sobel} = 4.65, p < .01$) (see Table 2b).

The Mediating Role of Depression Symptoms (Hypothesis 3)

With regard to the third hypothesis—i.e., whether depression symptoms would mediate the relationship between rumination and ideation—the relationship between brooding and ideation decreased significantly after depression score was entered in block 4 of the analysis ($Z_{Sobel} = 6.03, p < .01$), although brooding remained a significant predictor of ideation ($\beta_{Block4} = .12, p < .01$), while reflection did not ($\beta_{Block4} = .03, p = .98$). INE no longer significantly predicted suicidal ideation after depression score was entered, $\beta = .05, p = .15$ ($Z_{Sobel} = 5.54, p < .01$) (see Table 2b). Thus, while brooding emerged as a partial mediator of the relationship between INE and ideation, depression symptoms partially mediated the relationship between brooding and ideation, thus

partly accounting for the relationship between INE and ideation through brooding.

DISCUSSION

Negative life events are important predictors of both depression and suicidality, but cognitive variables, the tendency to ruminate among them, are a key to understanding the path by which life events lead to these negative mental health outcomes. This study is the first, to our knowledge, to examine whether brooding and reflection—subtypes of rumination found to be differentially related to suicidal ideation—would explain the concurrent relationship between the impact of negative life events (INE), depression symptoms, and suicidal ideation. Higher participant ratings of INE over the previous year were associated with more brooding and reflection in response to a negative mood, with higher self-reported symptoms of depression, and with more suicidal ideation in the previous two weeks. Brooding and reflection both partially mediated the concurrent relationship between negative life events and symptoms of depression. Brooding partially accounted for the relationship between life events and suicidal ideation when reflection was held constant, but reflection did not account for the relationship when brooding was held constant. These results are consistent with past findings (e.g., Miranda & Nolen-Hoeksema,

2007; O'Connor & Noyce, 2008) that brooding predicts suicidal ideation, but do not support Miranda & Nolen-Hoeksema's (2007) finding that reflection also predicts ideation. Additionally, we found evidence that depression partially explained the brooding-ideation relationship—a result consistent with previous research (Miranda & Nolen-Hoeksema, 2007)—and thus was also a partial mediator of the relationship between INE and suicidal ideation.

These findings add to the literature establishing that rumination following negative events results in negative affect and depression (Moberly & Watkins, 2008b; Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema, Parker, & Larson, 1994; Robinson & Alloy, 2003), and suggest that brooding in response to a negative mood not only partially explains the relationship between INE and suicidal ideation but also contributes to suicidal ideation independently of depression. INE had no significant relationship to ideation after adjusting for depression and the ruminative subtypes, indicating that in our sample, life events promoted suicidality through brooding and depression.

The different impacts of brooding and reflection on suicidal ideation after adjusting for negative life events might be explained by their relationship to maladaptive cognitive phenomena, such as impairment in social problem solving, a deficit that has been linked to depression and suicidality (D'Zurilla, Chang, Nottingham et al., 1998; Speckens & Hawton, 2005), as well as dysphoric rumination (Lyubomirsky & Nolen-Hoeksema, 1995; Lyubomirsky, Tucker, Caldwell et al., 1999; Watkins & Baracaia, 2005; Watkins & Moulds, 2005). Brooding is associated with passive coping efforts—e.g., denial, avoidance, and attempts to disengage from a stressor (Burwell & Shirk, 2007; Marroquín, Fontes, Scilletta et al., 2009), and may be a reaction to efforts to suppress negative cognitions about life events (see, e.g., Wenzlaff &

Luxton, 2003). This cycle of avoidance and painful immersion may prevent constructive engagement with problems.

Burwell and Shirk (2007; see also Crane, Barnhofer, & Williams, 2007a; and Treynor, Gonzalez, & Nolen-Hoeksema, 2003) suggest that reflection, in contrast, may be a more considered, voluntary approach to problem solving. Engaging in reflection as a result of negative life events may lead individuals to resolve problems before they feel so overwhelmed they turn to ideation. Brooding, if it is an aversive consequence of suppression, might lead individuals to think about more final means of escape, helping to explain why brooding, though not reflection, mediated the relationship between INE and ideation in our study. It should be noted, however, that while we did not find a positive association between reflection and suicidal ideation, we found no evidence of a protective effect either, and reflection predicted depression. Indeed, Marroquín and colleagues (2009) found that reflection is associated with higher levels of depression among people who score low on measures of active coping. Even if reflection constitutes an active effort at problem solving, whether it is an effective means of problem solving may depend on other factors.

Reflection and brooding may also differentially influence hopelessness, a cognitive variable not measured in this study. Hopelessness has been found to partially mediate the relationship between rumination and the onset of suicidal thinking (Smith, Alloy, & Abramson, 2006). The content of brooding appears closely related to the negative inferential styles—individuals' tendency to attribute negative events to stable and global causes, to see them as evidence of their low self-worth, and to anticipate drastic consequences of events (Abramson, Alloy, Hogan et al., 1998)—that have been found to predict suicidal ideation after negative life events (e.g., Joiner & Rudd, 1995). For example,

the item on the brooding subscale, *Think "why do I always react this way?"* contains a stable attribution, and the item, *Think "what am I doing to deserve this?"* contains an inference of low self-worth. Brooding may be the process of iteratively strengthening the associative networks between life events and painful thoughts about the self and the future, thus contributing to hopelessness and ideation.

Reflection may be less related to hopelessness than brooding, or even negatively related. Individuals who are trying to understand their problems and to solve them have some hope left for the future. That does not rule out the possibility, however, that reflection could lead to the development of hopelessness over time, as repeated efforts to address the challenges of negative life events fail, and analytical attention to those problems generates despair. This may be one way to reconcile the current findings that reflection does not concurrently predict suicidal ideation with Miranda and Nolen-Hoeksema's (2007) finding that reflection predicted ideation over time. Future research on the relationship between the ruminative subtypes and suicidality should include an explicit measure of hopelessness to explore these relationships.

Several limitations of the present study should be noted. First, this was a cross-sectional study, which limits the ability to draw conclusions about the direction of findings. Second, the use of a college-student sample, while allowing these relationships to be free from the biases that might occur with a clinical sample, limits the generalizability of the findings to clinical populations. Nevertheless, studying these processes in a non-clinical sample might inform intervention and prevention efforts with individuals who may normally not disclose thoughts of suicide and who thus go unidentified, such as young people (see Miranda, Scott, Hicks et al., 2008)—particularly those of ethnic minority background (Morrison & Downey, 2000).

Third, participants were informed during the consent procedure that they might be referred for further assessment if they were deemed to be in danger of hurting themselves, and it is always possible that this knowledge led to under-reporting of suicidal ideation. A fourth limitation is that suicidal ideation was measured using only one question on a questionnaire, rather than a measure specifically designed to measure ideation. Having a restricted range of scores may have prevented us from detecting possible differences in the pathways to mild versus severe ideation. Additionally, it should be noted that rumination was not measured in response to specific negative life events and thus, conclusions cannot be drawn about whether rumination occurred in response to the events rated by participants. Indeed, much of the research on the relationship among life events, rumination, and negative mood has not typically examined rumination in response to specific life events—although there are some exceptions (e.g., Moberly & Watkins, 2008b; Robinson & Alloy, 2003; Sarin, Abela, & Auerbach, 2005)—and this is a gap that should be addressed in future research examining the contributory role of rumination in the relationship between negative life events and suicidal ideation. Finally, our measure of the impact of life events does not allow for differentiation between participants who experienced many lower impact negative events, and participants who experienced fewer but more severe stressors; people may respond differently to chronic stress than they do to more isolated severe events, like bereavement. Also, because depressed or currently suicidal participants may have been more inclined to rate events as severe, even if they didn't experience them so at the time, it is unclear to what degree we assessed the severity of life events, participants' contemporaneous reaction to them, or participants' retrospective assessment at

the time of the study. All of these variables are of theoretical interest.

In summary, this study provided evidence that brooding and depression mediated the concurrent relationship between the impact of negative life events and suicidal ideation. While brooding appears very conclusively maladaptive, the effect of reflection is less clear. Further exploration and specification of cognitive responses to negative events will allow clinicians to target cognitions that are demonstrably damaging, and not discourage kinds of thought that may help clients find constructive solutions to problems they face.

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