

Rumination and Lifetime History of Suicide Attempts

Marie Grassia and Brandon E. Gibb

Binghamton University

The primary goal of the current study was to examine the link between rumination (brooding and reflective rumination) and the history of suicide attempts in adult psychiatric inpatients. As predicted, psychiatric inpatients reporting histories of suicide attempts exhibited higher current levels of brooding, but not reflective, rumination than did those with no prior suicide attempts. These results were maintained even after statistically controlling for patients' current depressive symptom levels. These results support the hypothesis that rumination, particularly brooding rumination, may be a risk factor for suicide attempts.

According to the response style theory (Nolen-Hoeksema, 1991), a tendency to ruminate in response to a sad mood (i.e., a ruminative response style) is hypothesized to increase both the severity and the duration of depressive reactions to negative events. Rumination has been defined as repetitively and passively focusing on the fact that one is depressed, one's symptoms of depression, and the causes, meanings, and consequences of one's depressive symptoms (Nolen-Hoeksema, 1991). A ruminative response to depressive affect is hypothesized to contribute to the development and maintenance of depression by escalating the effects of initial negative mood on thinking (making negative cognitions more accessible), by reducing effective problem solving by making thinking more pessimistic, by reducing functional behaviors which would allow for positive reinforcement, and by deterring social support (Nolen-Hoeksema, 1991; Nolen-Hoeksema & Davis, 1999).

Recently, researchers have distinguished two types of rumination, brooding and reflection (Treyner, Gonzalez, & Nolen-Hoeksema, 2003). *Brooding* rumination is defined as a kind of maladaptive moody pondering whereas *reflection* is hypothesized to depict contemplation and even coping, making it, perhaps, less maladaptive (Treyner et al., 2003). A number of studies have supported the role of rumination, particularly brooding rumination, in both the development and maintenance of symptoms and diagnoses of depression (e.g. Grassia & Gibb, 2008; Just & Alloy, 1997; Nolen-

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Address correspondence to Marie Grassia, Department of Psychology, Binghamton University (SUNY), Binghamton, NY 13902-6000. E-mail: marie.grassia@binghamton.edu.

Hoeksema, 1991; Nolen-Hoeksema, 2000; Treynor et al., 2003). However, it remains unclear whether rumination is also linked to actual suicide attempts, which could be seen as belonging to the most severe end of the depression continuum. Studies have supported the role of other cognitive vulnerabilities such as hopelessness, negative inferential styles, and dysfunctional attitudes in contributing risk for suicide (for reviews, see Abramson et al., 2000; Weishaar, 1996). A limitation of these studies, however, is that almost all focus on suicidal ideation and not actual suicidal behavior (for notable exceptions, see Beck, Brown, Berchick, & Stewart, 1990; Beck, Brown, & Steer, 1989; Beck, Steer, Kovacs, & Garrison, 1985).

Although, in her response styles theory, Nolen-Hoeksema has not specifically discussed rumination as a risk factor for suicide, depression is the psychiatric disorder most strongly linked to suicide (for a review, see Stolberg, Clark, & Bongier, 2002). In addition, rumination has been shown to increase the severity of depressive reactions and to contribute to poorer problem solving (Nolen-Hoeksema et al., 2008), factors that are also linked to increased suicide risk (for reviews, see Pettit & Joiner, 2006; Stolberg et al., 2002). Supporting the hypothesis that rumination may confer risk for suicidal ideation, Miranda and Nolen-Hoeksema (2007) found that brooding was more strongly related to baseline levels of suicide ideation than reflection within a community sample of adults and that brooding and reflection both predicted residual change in suicide ideation over one year. The only study, of which we are aware, that examined the relation between rumination and suicide attempts was by Crane and colleagues (2007) who found that individuals with a history of suicide attempts, compared to those with no history of attempts, reported lower levels of reflection. The groups did not differ in levels of brooding. Although Crane et al. suggested that elevated levels of reflection may represent a protective factor, research in depression has suggested a positive correlation between reflection and depressive symptoms (e.g. Nolen-Hoeksema et al., 2008).

The primary goal of the current study was to examine the relations of brooding and reflective rumination with adult psychiatric inpatients' histories of suicide attempts. Consistent with other retrospective high-risk design used to test cognitive models of depression (e.g., Alloy et al., 2000; Haefffel et al., 2003), we predicted that psychiatric inpatients displaying higher levels of rumination currently would be more likely to have a past history of suicide attempts. Consistent with findings from research on depression (for a review, see Nolen-Hoeksema, 2008), we also predicted that inpatients' histories of suicide attempts would be more strongly related to their current levels of brooding rumination than reflective rumination. Finally, we tested the hypothesis that these relations would be maintained even after statistically controlling for patients' current levels of depressive symptoms.

METHOD

Participants

Participants were 31 individuals recruited from a general psychiatric inpatient unit. The exclusion criteria were an inability to understand English or active psychotic symptoms that would preclude participation. There were 14 males and 17 females whose age ranged between 18 and 59 years ($M = 35.61$, $SD = 11.61$). In terms of racial/ethnic composition, 83.9% of the sample was Caucasian, 6.5% Asian, 3.2% African

American, and the remainder were from other or mixed racial/ethnic backgrounds. All participants were receiving inpatient treatment for a psychiatric condition. Axis I chart diagnoses for participants were as follows: Major Depression = 12 (38.7%), Bipolar Disorder = 8 (25.8%), Adjustment Disorder = 2 (6.5%), Schizoaffective Disorder = 2 (6.5%), Substance Induced Mood Disorder = 2 (6.5%), Mood Disorder NOS = 2 (6.5%), Depressive Disorder NOS = 1 (3.2%), Opioid Dependence = 1 (3.2%), and Psychosis NOS = 1 (3.2%).

Measures

Patients' lifetime histories of nonfatal suicide attempts were assessed as part of the clinical interview administered to all patients prior to hospital admission. These data were obtained by reviewing patients' medical charts. For all analyses, each patient's history of prior suicide attempts was considered dichotomously, indicating whether or not the patient had ever made a previous suicide attempt. The intended lethality of patients' suicide attempts was confirmed by reviewing their responses to the Suicidal Behaviors Questionnaire (Linehan, 1996) which was administered as part of this study. The first question of this questionnaire asks, "Have you ever thought about or attempted to kill yourself in your lifetime?" Participants endorsing the response option "I attempted to kill myself, and I think I really hoped to die" were coded as having made a previous suicide attempt (cf. Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007). In this sample, 16 patients (51.6%) expressed a past suicide attempt with intent to die.

Levels of rumination were assessed using the Rumination Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991; Treynor et al., 2003). The RRS is a self-report questionnaire that asks participants to rate the frequency with which they think or do certain things when they feel sad, down, or depressed (e.g., "Go some place alone to think about your feelings," "Think about a recent situation, wishing it had gone better"). Studies have supported the concurrent and predictive validity of the RRS as well as the scale's retest stability (Nolen-Hoeksema et al., 2008). For example, in adolescent girls, the two year retest correlation was .37 - .38 (Nolen-Hoeksema et al., 2007) and in a sample of recently bereaved adults the interclass correlation was .75 across 5 interviews over an 18-month period (Nolen Hoeksema & Davis, 1999). The RRS contains two 5-item subscales, which assess brooding and reflective rumination. Both subscales have exhibited adequate internal consistency (α s = .77 and .72 for brooding and reflection, respectively) and retest reliability over one-year (r = .62 and .60 for brooding and reflection, respectively; Treynor et al., 2003). The subscales also exhibited good internal consistency in this study (RRS-Brooding: α = .91; RRS-Reflection: α = .82).

Depressive symptoms were assessed using the Beck Depression Inventory-Second Edition (BDI-II; Beck, Steer, and Brown, 1996), a 21-item self-report questionnaire. Studies have supported the reliability and validity of the BDI-II in clinical and non-clinical samples (Nezu, Nezu, McClure, & Zwick, 2002). Given the strong link between past and current suicidality (Joiner et al., 2005), the item assessing participants' current suicidal ideation was omitted to avoid inflating the relations between these variables. In this study, the remaining 20 items of the BDI-II exhibited excellent internal consistency (α = .94).

TABLE 1. Correlations among Study Variables

Variable	1	2	3	%	<i>M</i>	<i>SD</i>
1. Suicide Attempt	-			51.6		
2. RRS-Brooding	.46** (.38*)	-			15.52	3.35
3. RRS-Reflection	.33 (.10)	.72** (.69**)	-		11.66	4.12
4. BDI-II	.25 (.19)	.41* (.38*)	.15 (.08)		34.45	15.59

Note. RRS-Brooding = Rumination Response Scale-Brooding subscale; RRS-Reflection = Rumination Response Scale-Reflection subscale; BDI-II = Beck Depression Inventory – II. Values in parentheses represent partial correlations, statistically controlling for participant sex. * $p < .05$. ** $p < .01$.

Procedure

Study procedures were approved by the Institutional Review Board at Butler Hospital, Providence, Rhode Island. Study personnel approached patients about participating in the study. Those who gave informed consent and met inclusion/exclusion criteria were entered into the study. All of the assessments took place in private, quiet rooms on the inpatient unit at Butler Hospital. Participants received no remuneration for their participation.

Results

Preliminary analyses were conducted to determine whether there were significant gender differences in any of the variables. In this sample, women were more likely to report a lifetime history of suicide attempts than men (76.5% of women vs. 21.4% of men), $\chi^2(1, N = 31) = 9.31, p = .002, r_{\text{effect size}} = .55$. In addition, women reported higher levels of reflection ($M = 13.07, SD = 3.66$ vs. $M = 9.73, SD = 3.85$), $t(29) = 2.47, p = .02, r_{\text{effect size}} = .42$, but not brooding ($M = 16.25, SD = 3.23$ vs. $M = 14.50, SD = 3.31$), $t(29) = 1.49, p = .15, r_{\text{effect size}} = .27$, than men. Given the sex difference in suicide attempts, participant sex was included as a covariate in all analyses for which suicide attempts served as the dependent variable. Correlations among the study variables (as well as the partial correlations statistically controlling for participants' sex) can be found in Table 1.

Next, logistic regression analyses were used to examine the relation between rumination and patients' histories of suicide attempts. Brooding and reflective rumination were examined in separate analyses and participant sex was included as a covariate in all analyses. Consistent with our hypothesis, participants with higher levels of brooding were more likely to report a past suicide attempt, $Wald = 3.88, p = .05, OR = 1.34$ (95% CI = 1.00-1.79). In contrast, patients' levels of reflection were not significantly related to their history of suicide attempts, $Wald = 0.30, p = .58, OR = 1.07$ (95% CI = 0.85-1.34). Further, consistent with our hypothesis, current levels of brooding were significantly more strongly related to participants' history of suicide attempts ($r_{\text{effect size}} = .38$) than were levels of reflection ($r_{\text{effect size}} = .10$), $z = 1.96, p = .05$. Importantly, the link between brooding and suicide attempt history was main-

tained even after statistically controlling for participant's current levels of depressive symptoms, $r = .34, p < .05$. Finally, although we also examined whether sex or current depressive symptoms moderated the relations between suicide attempt history and scores on the two rumination subscales, none of these analyses was significant.

DISCUSSION

In this study, we focused on relations among adult psychiatric inpatients' current levels of rumination and their lifetime histories of suicide attempts with intent to die. As hypothesized, patients with a lifetime history of suicide attempts reported higher levels of brooding rumination than did patients with no lifetime suicide attempts. Also consistent with our hypothesis, levels of brooding rumination were significantly more strongly related to patients' histories of suicide attempts than were levels of reflective rumination. In addition, the relation between brooding and suicide attempt history remained significant even when controlling for patients' levels of current depressive symptoms.

These results add to the growing body of research supporting the response styles theory of depression (for a recent review, see Nolen-Hoeksema et al., 2008). They extend previous findings with depression by suggesting that levels of rumination, particularly brooding, are associated with patients' history of suicide attempts (see also Crane et al., 2007; Miranda & Nolen-Hoeksema, 2007). Although the current results are consistent with the hypothesis that brooding rumination may increase risk for the occurrence of suicide attempts, we cannot draw causal conclusions given the retrospective design of the studies. Specifically, retrospective high-risk designs rest on the assumption that levels of rumination are relatively stable over time (i.e., that current levels of rumination reflect levels that would have been present prior to the suicide attempt). Supporting this assumption, previous research has supported the stability of rumination over time (for a review see Nolen-Hoeksema et al., 2008) and there is evidence that brooding (and reflective) rumination predict prospective changes in suicidal ideation in a nonclinical sample of adults (Miranda & Nolen-Hoeksema, 2007). Future research is needed to determine whether elevated levels of rumination prospectively predict the occurrence of suicide attempts. Building from the current results as well as those by Crane et al. (2007), these studies should also seek to determine whether levels of brooding rumination are indeed more strongly tied to risk for suicide attempts than are levels of reflective rumination.

Despite the strengths of this study, its limitations should also be noted. The most notable limitation was the study's retrospective design. As noted above, the study design precludes any causal conclusions and rests on the assumption that patients' current levels of rumination are similar to those preceding the suicide attempt, that is, rumination remains stable over time. Supporting this assumption, there is evidence that levels of rumination are relatively stable over time (Nolen-Hoeksema et al., 2008). This said, longitudinal research is needed to more definitively determine whether brooding rumination increases the risk for a future suicide attempt. A second limitation was our reliance upon participants' self-reports in assessing suicide attempt history and current levels of rumination. Future studies should seek to supplement participants' self report with other ways to assess rumination. For example, to the extent that rumination is conceptualized as perseverative self-focused attention, researchers could employ attentional deployment tasks to assess difficulty disengaging from negative self-referent

information. Supporting the potential utility of this paradigm, researchers have shown that levels of brooding, but not reflective, rumination are significantly related to attentional biases toward sad faces and that this attentional bias is specific to sad as opposed to happy or angry faces (Joorman, Dkane, & Gotlib, 2006).

In summary, the current results add further support to the response styles theory of depression (Nolen-Hoeksema & Morrow, 1991) and suggest that, in addition to predicting the development and maintenance of depression, rumination may contribute risk for actual suicide attempts. We look forward to future longitudinal studies which can test whether a ruminative response style, particularly one characterized by brooding, actually prospectively predicts which individuals are at greatest risk for attempting suicide in the future.

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