



Shorter communication

Brooding and reflective rumination among suicide attempters: Cognitive vulnerability to suicidal ideation

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ABSTRACT

Previous research suggests that the brooding subtype of rumination is associated with increased suicidal ideation, but findings are inconsistent with respect to reflection, considered to be the more adaptive form of rumination. This study investigated the circumstances under which reflective rumination might be associated with increased suicidal ideation by examining whether a suicide attempt history moderated the relationship between the ruminative subtypes and current suicidal ideation. Thirty-seven young adults who reported a past suicide attempt and fifty-nine young adults without a suicide attempt history completed measures of rumination and depression symptoms in an initial study session. They then completed a measure of suicidal ideation and hopelessness during a second study session. Overall, brooding was associated with higher self-reported suicidal ideation, whereas reflection was not significantly associated with ideation. However, reflection – but not brooding – interacted with suicide attempt history to statistically predict suicidal ideation, even after adjusting for symptoms of depression and hopelessness, whereas brooding no longer predicted ideation after adjusting for these symptoms. These findings qualify earlier suggestions that reflection is a more adaptive form of rumination by indicating that among vulnerable individuals – in particular those with a history of a suicide attempt – a higher degree of reflective rumination is associated with increased suicidal ideation.

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Introduction

Depressive rumination, that is, a tendency to turn repetitive internal focus on one's negative mood, and the causes and consequences of one's mood (Nolen-Hoeksema, 1991), is a concurrent and prospective predictor of both depression (e.g., Just & Alloy, 1997; Nolen-Hoeksema, 2000; Spasojevic & Alloy, 2001) and suicidal ideation and behavior (e.g., Abramson et al., 1998; Eshun, 2000; Miranda & Nolen-Hoeksema, 2007; O'Connor & Noyce, 2008; Smith, Alloy, & Abramson, 2006; see also Morrison & O'Connor, 2008). However, recent research suggests that the content of depressive ruminative thought must be further specified in order to fully understand the relationship between rumination in response to dysphoria and maladaptive outcomes.

Two subtypes of rumination were revealed in a factor analysis performed by Treynor, Gonzalez, and Nolen-Hoeksema (2003). The first, brooding, is “a passive comparison of one's current situation to some unachieved standard” (p. 256). The second, reflection, is “a purposeful turning inward to engage in cognitive problem solving

to alleviate one's depressive symptoms” (p. 256). Treynor and colleagues and, to our knowledge, every subsequent study on the subtypes of rumination, found that brooding is concurrently or prospectively associated with either negative affect (Moberly & Watkins, 2008), depression (Burwell & Shirk, 2007; Joormann, Dkane, & Gotlib, 2006; Siegle, Moore, & Thase, 2004; Treynor et al., 2003), or suicidal ideation and attempts (Chan, Miranda, & Surrence, 2009; Crane, Barnhofer, & Williams, 2007; Miranda & Nolen-Hoeksema, 2007; O'Connor & Noyce, 2008).

The picture for reflection is more complicated. Reflection has been found to be concurrently related to depression (Fresco, Frankel, Mennin, Turk, & Heimberg, 2002; Joormann et al., 2006; Siegle et al., 2004; Treynor et al., 2003) and suicidal ideation (Miranda & Nolen-Hoeksema, 2007; O'Connor & Noyce, 2008) in some studies, but other studies fail to find a concurrent relationship to depression (Burwell & Shirk, 2007; Lo, Ho, & Hollon, 2008). Some studies find non-significant longitudinal relationships between reflection and negative affect (Moberly & Watkins, 2008) and depression (Burwell & Shirk, 2007), but Treynor et al. (2003) found a negative relationship – that is, reflection predicted a decrease in depression scores over time.

However, reflection may have a relationship to suicidal ideation and behavior independent of its relationship to depression.

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Miranda and Nolen-Hoeksema (2007) found that both average brooding and average reflection scores prospectively predicted suicidal ideation (at one-year follow-up), and further that although depression partially mediated the relationship between brooding and ideation, it did not mediate the relationship between reflection and ideation. O'Connor and Noyce (2008) failed to replicate the finding that reflection predicts ideation, although they argued that their data set may not have afforded them the same statistical power to detect the small effect size of reflection's influence on suicidality. The study also included a different follow-up period (i.e., 3 months) than that of Miranda and Nolen-Hoeksema (2007). In contrast, Crane et al. (2007) found that among their formerly depressed participants, reduced levels of reflection were associated with a history of suicide attempts, and speculated that reflection may be a problem-solving orientation that buffers against the development of suicidal thoughts and behaviors.

The work of Watkins and colleagues, however, like the findings of Miranda and Nolen-Hoeksema (2007), may leave some reason to doubt that reflection is uniformly adaptive. Watkins (2008) reviewed findings that the level of construal of repetitive thought – that is, whether it is abstract and analytical or concrete and experiential – is an important determinant of whether it is adaptive. In the context of depression, stress, or negative mood, more abstract, high-level construals lead to deficits such as impaired problem-solving, increased global negative self-judgments, and increased emotional reactivity (see, e.g., Rimes & Watkins, 2005; Watkins, Moberly, & Moulds, 2008; Watkins & Moulds, 2005). Both brooding and reflection involve abstract, high-level construals.

Before ultimate determinations can be made about the harms and benefits of the subtypes of rumination, it is necessary to consider the effect of possible moderator variables, as has been stressed in recent reviews on rumination (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008) and repetitive thought more generally (Watkins, 2008). Both Watkins and Nolen-Hoeksema et al. stress intrapersonal context, such as dysphoric mood, negative cognitive styles, and low self-esteem. One other such intrapersonal variable is suicide attempt history. Past suicidal behavior makes future behavior more likely (e.g., Brown, Beck, Steer, & Grisham, 2000; Joiner et al., 2005; Lewinsohn, Rohde, & Seeley, 1994) and may do so by changing the way cognitions interact with experience. Lau, Segal, and Williams (2004) argue that suicidal behavior increases the future accessibility of suicide-related cognitions, facilitating their activation in response to challenges. Joiner (2005) offered a similar argument and also suggested that past suicidal behavior potentiates future suicidal behavior by diminishing the frightening qualities of suicidal ideation or attempts over time and increasing their calming and pain relieving effects. If through experience with suicidal behavior, suicidal thoughts become more accessible or less aversive, it may fundamentally alter the relationship between cognitive and affective variables, including brooding and reflection, and maladaptive outcomes.

In the present research, we sought to extend the literature on the subtypes of rumination and suicidal ideation and attempts by investigating how a history of suicidal behavior moderates the relationship between the subtypes of rumination and suicidal ideation. Specifically, we investigated whether a history of a suicide attempt was a discriminator between circumstances in which reflection is benign and circumstances in which it is not. We predicted that among non-attempters, brooding and reflection would both be related to suicidal ideation, but brooding more so than reflection, replicating previous findings (Miranda & Nolen-Hoeksema, 2007; O'Connor & Noyce, 2008). We further predicted that among suicide attempters, reflection would be associated with higher degrees of suicidal ideation than among non-attempters.

Method

Participants

Ninety-six college undergraduates (73 females, 23 males), ages 18 to 30 ($M = 18.9$, $SD = 2.2$), were recruited from Introduction to Psychology courses and took part in this study either as part of their research requirement or for \$50 in compensation (participants chose which option they preferred). All participants were recruited from a sample of 1011 participants who took part in a larger study (see Chan et al., 2009, for a description of the original sample). The 96-participant subsample was 32% Asian/Pacific Islander, 29% White, 23% Hispanic, 7% Black American/Caribbean, and 8% of other ethnicities. Thirty-seven individuals reported a suicide attempt history (13 of whom also reported suicidal ideation), sixteen reported suicidal ideation (only), and the remainder ($N = 43$) reported neither suicidal ideation nor history of an attempt. Thus, there were thirty-seven previous suicide attempters and fifty-nine non-suicide-attempters in the present sample.¹

Measures

Suicide attempt history

A Suicidal Behavior Screening (SBS) was administered to assess for past history of a suicide attempt. This screening included questions derived from the Diagnostic Interview Schedule for Children (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). Suicide attempt history was assessed with the question, "Have you ever, in your whole life tried to kill yourself or made a suicide attempt?"

Brooding and reflection

The ruminative subtypes were measured using 10 items previously identified by Treynor et al. (2003) as comprising the brooding and reflection scales of the Ruminative Responses Scale (RRS). The brooding scale consists of 5 items addressing a tendency to dwell on one's negative mood and on the consequences of that mood (e.g., Think "What am I doing to deserve this?"). Items on the reflection scale address a more active effort to understand the reasons for one's mood (e.g., Analyze recent events to try to understand why you are depressed). Scores were obtained by averaging the five items on each scale, to allow for comparison with Crane et al. (2007) and to be consistent with Miranda and Nolen-Hoeksema (2007). Brooding scores ranged from 1 to 4, with an average of 2.5 ($SD = 0.7$), and reflection scores ranged from 1 to 4, with an average of 2.1 ($SD = 0.7$). Both scales showed adequate internal consistency in the present sample ($\alpha_{\text{brood}} = .78$, $\alpha_{\text{reflection}} = .72$).

Depression symptoms

Symptoms of depression were assessed using the Patient Health Questionnaire-9 (PHQ-9; Spitzer, Kroenke, & Williams, 1999), which assesses symptoms consistent with a DSM-IV diagnosis of Major Depressive Disorder, experienced during the previous two weeks. Scores on the PHQ-9 can range from 0 to 36, and in the present sample, the average score was 10.0 ($SD = 5.0$), with a range of 0–21. Cronbach's alpha was .81 in the present sample.

Suicidal ideation

Suicidal ideation was measured using the Beck Scale for Suicidal Ideation (BSS; Beck & Steer, 1991) a 21-item self-report

¹ A total of 85 (8.4%) out of 1011 participants reported a lifetime suicide attempt. There were no statistically significant age, gender, and race/ethnic differences between participants who did and did not take part in the second study session.

questionnaire that includes questions about wish to die, plans, and access to means. Total scores are computed by summing the first 19 items, with the last two questions inquiring about number of past suicide attempts and about suicide intent during the most recent attempt. Scores ranged from 0 to 14, with an average of 1.1 (SD = 2.8).² The BSS showed high internal consistency in the present sample ($\alpha = .97$).

Hopelessness

The Beck Hopelessness Scale (BHS; Beck & Steer, 1988) is a 20-item scale that measures negative expectations about the future using a true/false response format. Total scores can range from 0 to 20. The BHS showed good internal consistency in the present sample ($\alpha = .87$), and scores ranged from 0 to 20, with an average of 5.7 (SD = 4.5).

Procedure

Participants were recruited as part of a study examining social-cognitive risk factors for suicidal ideation and behavior among first- and second-year college students (see Chan et al., 2009). They completed a packet of questionnaires in groups of 2–8 that included the RRS, SBS, and PHQ-9, and participants who gave consent to be contacted for future research were invited to participate in a second study session in which they completed the BSS and BHS, along with laboratory-based tasks and other measures (not of interest in the present analyses). The average number of days between sessions ($M = 18$, $SD = 12$) did not differ significantly between past attempters and non-attempters, nor did number of days between sessions correlate significantly with any variable in the study. Attempts were made to recruit participants who reported a history of a suicide attempt, any suicidal ideation (with or without a suicide attempt history), and a random sample of participants who reported neither ideation nor an attempt history. Individuals were contacted via electronic mail and were invited to take part in the second study session or made an appointment at the time of the initial session.

Research assistants examined participants' responses to the SBS and to items 12, 13, 16, 17, or 18 on the BSS before participants were debriefed to identify individuals potentially reporting current suicidal ideation with a plan or a recent suicide attempt (i.e., previous 2 weeks) with current suicidal intent. Participants who were identified as at risk according to these criteria were to be interviewed by R.M., a licensed clinical psychologist, and escorted to the college counseling center for further evaluation if they were not already in treatment. However, no participants met these risk criteria during the study. All study participants received a list of local treatment referrals.

Results

Group differences

Differences between suicide attempters and non-attempters on study variables were examined using independent-samples *t*-tests.

² It should be noted that BSS scores were positively skewed in the present sample (i.e., more people scored on the lower end of the scale), both among non-suicide attempters and previous suicide attempters. A scatterplot with LOESS fit indicated no systematic curvilinear relationship that might bias regression coefficient estimates. If the relationship between variables is approximately linear, ordinary least squares coefficients should be unbiased estimates of population values (Fox, 1997).

Table 1
Differences between suicide attempters and non-suicide attempters.

| | Suicide attempters (<i>n</i> = 37) | | Non-suicide attempters (<i>n</i> = 59) | | <i>t</i> | Effect Size (<i>d</i>) |
|-------------------------|--|-----|--|-----|----------|--------------------------|
| | Mean | SD | Mean | SD | | |
| Brooding (RRS) | 2.7 | 0.7 | 2.4 | .8 | 1.83+ | .40 |
| Reflection (RRS) | 2.2 | 0.7 | 2.0 | .6 | 1.47 | .31 |
| Hopelessness (BHS) | 7.2 | 5.0 | 4.7 | 4.0 | 2.66** | .55 |
| Depression Sxs (PHQ-9) | 11.6 | 5.2 | 9.0 | 4.6 | 2.51* | .53 |
| Suicidal Ideation (BSS) | 2.5 | 4.1 | .3 | 0.7 | 3.24** | .75 |

+*p* < .10; **p* < .05; ***p* < .01

Note: Descriptive statistics are rounded to one decimal place, given that the precision with which measures were obtained was to the nearest integer.

Suicide attempters had higher scores on the BHS, $t(94) = 2.66$, $p < .01$, PHQ-9, $t(94) = 2.51$, $p < .05$, and BSS, $t(37.49) = 3.24$, $p < .01$ (degrees of freedom for the BSS comparison are corrected for heterogeneity of variance), compared to non-suicide attempters. They also had marginally higher levels of brooding than non-attempters, $t(94) = 1.83$, $p = .07$, but did not show significantly higher levels of reflection, $t(94) = 1.47$, $p = .15$. Group means are reported in Table 1.

Differences between suicide attempters and non-attempters in strength of association between ruminative subtypes and suicidal ideation

Correlational analyses were performed to examine the relationships among the study variables. Across the combined sample of suicide attempters and non-attempters, both brooding and reflection were significantly and comparably positively correlated with suicidal ideation, $r(94)_{\text{brood}} = .23$, $p < .05$, $r(94)_{\text{reflect}} = .26$, $p < .05$, as the difference in correlations was not statistically significant, $Z_{\text{diff}} = .28$, $p = .78$ (Meng, Rosenthal, & Rubin, 1992). However, the nature of the relationships was different when examined separately by group (see Table 2). Among non-suicide attempters, neither brooding nor reflection was significantly associated with suicidal ideation. Although the direction of the correlation coefficients was consistent with previous findings that brooding is more strongly related to ideation, $r(57) = .19$, $p = .15$, than reflection, $r(57) = .03$, $p = .85$ (e.g., Chan et al., 2009; O'Connor & Noyce, 2008), the difference was not statistically significant, $Z_{\text{diff}} = 1.17$, $p = .24$. Among participants with a history of a suicide attempt, however, reflection was significantly associated with suicidal ideation, $r(35) = .35$, $p < .05$, while brooding was not, $r(35) = .24$, $p = .16$, although the size of the brooding correlation was comparable to that for non-attempters, $r(57) = .19$, $Z_{\text{diff}} = .24$, $p = .81$ (Preacher, 2002). This finding was consistent with our hypothesis that reflection would be associated with higher levels of suicidal ideation among individuals with a history of a suicide attempt.

Table 2
Correlations among study variables by attempt status.

| | 1 | 2 | 3 | 4 | 5 |
|----------------|-------|-------|-------|-------|------|
| Brooding | ... | .32+ | .56** | .31+ | .24 |
| Reflection | .47** | ... | .20 | .03 | .35* |
| Depression sxs | .29* | .40** | ... | .34* | .13 |
| Hopelessness | .34** | .23+ | .36** | ... | .40* |
| Ideation | .19 | .03 | .25+ | .71** | ... |

***p* < .01; **p* < .05; +*p* < .10.

Correlations for suicide attempters (*n* = 37) are reported above the diagonal and for non-attempters (*n* = 59) are reported below the diagonal.

Table 3
Predicting suicidal ideation from brooding, reflection, and suicide attempt history ($N = 96$).

| Block | Variable | β | t | Bootstrap 95% CI around β^a | Adjusted R^2 | Model F Change |
|-------|-----------------------------|---------|--------|-----------------------------------|----------------|--------------------|
| 1 | Suicide attempt | .28 | 2.99** | (.13, .42) | .26 | 7.81 ($p < .01$) |
| | Depression Symptoms | -.07 | -.62 | (-.26, .13) | | |
| | Hopelessness | .37 | 3.70 | (.12, .60) | | |
| | Brooding | -.01 | -.08 | (-.18, .16) | | |
| | Reflection | .18 | 1.83 | (-.09, .44) | | |
| 2 | Suicide attempt | .25 | 2.79** | (.09, .41) | .33 | 5.05 ($p < .01$) |
| | Depression Symptoms | -.07 | -.63 | (-.26, .14) | | |
| | Hopelessness | .38 | 4.00** | (.14, .61) | | |
| | Brooding | -.03 | -.27 | (-.13, .06) | | |
| | Reflection | -.03 | -.24 | (-.15, .08) | | |
| | Brooding \times Attempt | .08 | .68 | (-.20, .30) | | |
| | Reflection \times Attempt | .32** | 2.57** | (.01, .61) | | |

** $p \leq .01$.

All continuous predictor variables are centered around their means.

Adjusted R^2 = Proportion of variance in suicidal ideation accounted for by the variables in the model at each block of the analysis.

^a Confidence intervals (CI) were estimated using a bootstrap method with $n = 1000$ resamples.

Suicide attempt history as a moderator of the rumination–suicidal ideation relationship

We conducted a hierarchical linear regression analysis to assess whether brooding and reflection would interact with suicide attempt history to predict suicidal ideation, adjusting for symptoms of depression and for hopelessness. Suicide attempt history, depression symptoms, hopelessness, and brooding and reflection were entered together into the first block of the analysis to examine whether the ruminative subtypes predicted suicidal ideation after adjusting for other symptom variables. The interactions of brooding \times attempt history and reflection \times attempt history were entered into the second block of the analysis. Demographic variables (i.e., age, sex, ethnicity) were not included in the model because they did not account for a significant amount of variance in suicidal ideation, $F(6,89) = 1.19$, $p = .32$, when entered initially. All continuous predictor variables were centered around their means, as per the recommendation of Aiken and West (1991). Statistical significance of regression coefficients was determined via t -tests and confirmed by constructing 95% confidence intervals around β using a bootstrap procedure (see Efron & Tibshirani, 1986) with $n = 1000$ resamples (see Table 3).³ A standardized regression coefficient was considered statistically significant if its confidence interval did not include zero.

The results of this analysis are presented in Table 3. Suicide attempt history significantly predicted current suicidal ideation, $\beta = .28$, $p < .01$. Brooding did not significantly predict suicidal ideation, $\beta = -.01$, $p = .94$, and reflection was a marginally significant predictor of ideation, $\beta = .18$, $p = .07$, after adjusting for suicide attempt history, depression, and hopelessness in the first block of the analysis. Hopelessness was a statistically significant predictor of suicidal ideation, $\beta = .37$, $p < .01$, but depression symptoms did not significantly predict ideation, $\beta = -.07$, $p = .54$. The interaction of reflection and suicide attempt history, entered in the second block of the analysis, significantly predicted suicidal ideation, adjusting for the main effects of suicide attempt history, brooding, and reflection (along with depression symptoms and hopelessness), $\beta = .32$, $p = .01$. However, the interaction of brooding

and attempt history was not a statistically significant predictor of ideation, $\beta = .08$, $p = .50$.⁴ The entry of the reflection \times suicide attempt interaction accounted for about an additional 7% of variance in suicidal ideation scores. Hopelessness remained a statistically significant predictor of ideation in block 2, $\beta = .38$, $p < .01$. Simple effects of reflection on suicidal ideation by suicide attempt status (adjusting for depression symptoms, hopelessness, and brooding) were estimated using Hayes and Matthes's (2009) MODPROBE approach. Adjusting for all other variables, reflection was a significant predictor of suicidal ideation among suicide attempters, simple slope coefficient $b = 2.00$, $p < .01$, but not among non-attempters, simple slope coefficient $b = -.25$, $p = .62$.

Discussion

The primary goal of this study was to determine whether suicide attempters differed from non-suicide-attempters in how their engagement in the subtypes of rumination related to their current suicidal ideation. Contrary to our first hypothesis, neither brooding nor reflection was significantly related to suicidal ideation among non-attempters. Among previous attempters, brooding was not significantly associated with suicidal ideation, despite the trend-level finding that attempters endorsed more brooding than did non-attempters. By contrast, whereas reflection was comparably endorsed by attempters and non-attempters, it was significantly and positively associated with ideation only among attempters, supporting our hypothesis that the deleterious effects of reflection would be more pronounced in this group. The interaction between reflection and suicide attempt history predicted suicidal ideation strongly enough that it accounted for a significant proportion (approximately 7%) of variance in suicidal ideation scores beyond the effects of other variables. While researchers have tended to portray reflection as an adaptive mode of self-focus (e.g., Burwell & Shirk, 2007; Crane et al., 2007; Treynor et al., 2003), these results support previous findings that reflection is not a uniformly adaptive cognitive response style, especially in the context of suicidal behavior (Miranda & Nolen-Hoeksema, 2007).

³ Bootstrapping – conducted with the Statistical Package for the Social Sciences (SPSS) – was used to construct confidence intervals around the standardized regression coefficients because this method does not assume normality of the distribution (Zhu, 1997). It should be noted that bootstrapping did not alter the conclusions that would have been drawn using t -tests for the least squares estimates.

⁴ The same analysis was repeated with the full 22-item rumination scale total and the interaction of rumination and suicide attempt history included in the analysis, rather than the brooding and reflection subscales. Rumination interacted with suicide attempt history to significantly predict suicidal ideation ($\beta = .26$, $p < .05$), adjusting for the other variables in the model, but was not, by itself, a significant predictor of ideation when adjusting for suicide attempt history, hopelessness, and depression symptoms ($\beta = .14$, $p = .26$).

We speculate that the lack of a statistical relationship between brooding and ideation among both attempters and non-attempters in the correlation analysis was due to reduced power in the divided sample, since a significant correlation was found in the sample as a whole. In the regression analysis, brooding may have failed to predict ideation because of brooding's covariation with depression and hopelessness. Previous studies have established associations between brooding and depression (Treyner et al., 2003) and brooding and ideation (e.g., Chan et al., 2009; Miranda & Nolen-Hoeksema, 2007; O'Connor & Noyce, 2008) in non-clinical samples, and in fact, Miranda and Nolen-Hoeksema found that depression symptoms partly accounted for the relationship between brooding and suicidal ideation but did not account for the reflection-ideation relationship. Furthermore, hopelessness, which was not measured in these previous studies of the brooding-ideation relationship, was particularly strongly correlated with ideation among non-attempters and likely accounted for much of the lack of a brooding/depression-ideation relationship. Brooding, because of its passive focus on mood, may predict suicidal ideation primarily through an increase in hopelessness and an exacerbation of depression symptoms.

Further research is required to better understand the mechanisms by which attempt history influences the rumination-ideation relationship. Watkins (2008) argues that under conditions of difficulty or stress, an abstract mode of repetitive thought impairs the ability to attend to concrete goals and instrumental behavior (see also Lyubomirsky & Nolen-Hoeksema, 1995). While reflection is frequently characterized as more active and problem-solving oriented than brooding (e.g., Crane et al., 2007; Treyner et al., 2003), like brooding it is an abstract mode of self-focus; it concerns the reasons for events rather than their experiential qualities. In fact, recent evidence suggests that reflection's ameliorative effects on depression depend less on its own inherently active nature, and more on its interactive role within a more broadly active coping style (Marroquín, Fontes, Scilletta, & Miranda, Manuscript Under Review).

If reflection fixes thought at an abstract level of construal, it could have powerful implications for suicide attempters. Former suicide attempters have impaired problem-solving skills relative to non-attempters; some studies point to a characteristically passive approach to problem solving (see Reinecke, 2006, for a review). If, as our results suggest, reflection is maladaptive uniquely among previous attempters, it may be because reflection exacerbates a preexisting problem-solving deficit. The negative effects of reflection may stem not only from an overly abstract level of cognition (Watkins, 2008), but also from rumination's impact on executive processing and cognitive flexibility (e.g., Davis & Nolen-Hoeksema, 2000; Lyubomirsky & Nolen-Hoeksema, 1993; 1995; Watkins & Brown, 2002). For attempters, then, reflection may be a counterproductive way to orient to problem solving, diminishing the ability to generate and implement solutions while at the same time maintaining attention to negative affect and unfulfilled goals.

In addition to or instead of weakening problem solving, the strong predictive relationship between reflection and ideation among attempters may reflect a relatively automatic link between problem solving or regulatory efforts and suicidal ideation. Sensitization theories of depression and suicide (e.g., Joiner, 2002; 2005; Lau et al., 2004; Rudd, 2006) suggest that among former suicide attempters, suicidal thoughts are more chronically accessible. If ideation is chronically accessible among suicide attempters, one implication could be that it is activated independently of precursor cognitions like hopelessness.

This facilitation of the reflection-ideation link might weaken the statistical relationship between cognitive predictors like hopelessness and ideation among suicide attempters, even though levels

of these predictors and ideation may both be higher. The present findings are consistent with such an account – in our sample, hopelessness was higher among attempters than non-attempters, but was not significantly associated with reflection among attempters, though it should be noted that differences in sample size between groups complicate direct comparisons. These results are furthermore consistent with longitudinal findings that the prospective effect of reflection on ideation is not mediated by depression (Miranda & Nolen-Hoeksema, 2007). Reflection may build direct relationships with ideation over time, and these relationships may be particularly salient among individuals with an attempt history.

This chronic vulnerability account might also explain the seemingly contradictory findings of Crane et al. (2007) that previously depressed attempters endorsed significantly less reflection than previously depressed non-attempters. Indeed, the present sample showed no significant difference between attempters and non-attempters on levels of reflection, and further, our sample of attempters endorsed mean levels of reflection similar to the past attempters in Crane et al. But if attempt history contributes to the development of stronger reflection-ideation pathways, less reflection would be required to activate suicidal ideation. Crane et al. do not report current ideation, leaving open the possibility – supported here – that while their attempters endorsed lower reflection, it may have still been associated with suicidal thinking. It is also important to note that Crane et al.'s non-suicidal group had a previous history of major depression, whereas our non-attempter group included individuals with and without suicidal ideation and with both high and low scores on a depression measure. Thus, their findings may apply more directly to remitted depressed individuals, whereas the present findings may be more specific to a history of a suicide attempt regardless of depression symptoms.

Some limitations of the present study should be noted. Because of the cross-sectional nature of our data, we can draw no firm conclusions about the direction of causation. It is possible, for instance, that the association between reflection and ideation in our attempter group results in part from redoubled ruminative efforts to understand the source of distress following ideation. However, considered in light of the lack of group differences in reflection in the current sample, and Miranda and Nolen-Hoeksema's (2007) finding that reflection longitudinally predicts suicidal ideation, it seems likely that there was at least some degree of causal relationship between elevated reflection and higher levels of ideation. Future prospective research should investigate individual differences that determine whether reflection is helpful or harmful over time.

In addition, our non-clinical sample limits generalizability to more severe clinical populations. However, this sample – screened for suicidality from a much larger pool – is likely to capture aspects of the phenomena of rumination and suicidal ideation better than a clinical sample could, i.e., vulnerability that is present prior to the activating events that more proximally account for suicidal ideation or behavior. The present sample is also notable for its ethnic diversity. Finally, our findings apply to suicidal ideation among previous attempters, but we can draw no firm conclusions about the relationship of rumination to future attempts, completed suicide, or other forms of self-injurious behavior.

While replicating previous findings that suicide attempters show somewhat elevated levels of brooding relative to non-attempters, this study also provides the first evidence that among individuals with a history of a suicide attempt, reflection is positively associated with suicidal ideation, even when they do not endorse more reflection. Thus, research that does not take suicide attempt history into account when exploring the role of reflection in suicidal thinking may underestimate the maladaptive outcomes

of this ruminative subtype. Further examination of how cognitive content and processes interact along the path to suicidal behavior or recovery, and of how individual difference variables moderate the role of cognition in outcomes, will allow clinicians to target interventions to their clients' individual needs.

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