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Reduced Concreteness of Rumination in Depression: A Pilot Study

Abstract

We hypothesized that the reduced concreteness theory of worry (Stöber & Borkovec, 2002) would be applicable to negative recurrent thinking in general, including depressive rumination. To test this prediction, the current study compared the concreteness of problem descriptions of currently depressed (n = 30), recovered depressed (n = 29) and never depressed (n = 30) individuals. Participants provided open-ended descriptions of two current major problems about which they repeatedly dwell. Blind ratings demonstrated reduced concreteness of the problem descriptions and associated perceived consequences reported by the depressed group relative to the recovered depressed and control groups, which did not differ from each other. These findings are consistent with the hypothesis that recurrent thinking in depression involves reduced concreteness, paralleling the findings in GAD.

Keywords

worry; rumination; reduced concreteness; depression

1 Reduced concreteness in depressive rumination

Depressive rumination, defined as repeated focus on depressive symptoms, their causes and their meanings (Nolen-Hoeksema, 1991), predicts the onset and duration of major depression in prospective studies (e.g., Nolen-Hoeksema, 2000; Spasojevic & Alloy, 2001) and exacerbates negative mood and negative thinking in experimental studies (e.g., Lyubomirsky & Nolen-Hoeksema, 1995; Watkins & Moulds, 2005). Despite this convergent evidence that rumination plays a key role in depression, the processes contributing to the maintenance of rumination require further elucidation. This paper proposes that the reduced concreteness theory of worry may be relevant to accounting for the maintenance of rumination in depression.

The reduced concreteness theory (Stöber, 1998) was developed following observations that anxious worry is experienced primarily in verbal rather than image form (see review in Borkovec, Ray, & Stöber, 1998). It proposes that worry is characterized by reduced concrete thinking, which in turn produces less vivid and less frequent imagery. Concrete thought is operationalized as “distinct, situationally specific, unequivocal, clear, singular” (e.g., “I was rude to my friend John yesterday evening”) and abstract thought as “indistinct, cross-situational, equivocal, unclear, aggregated” (e.g., “I always find it hard to get on with people”) (Stöber & Borkovec, 2002, p. 92). Consistent with this account, problems that are reported as being repeatedly worried about have more abstract descriptions in both patients with GAD (Stöber & Borkovec, 2002) and students (Stöber, Tepperwien, & Staak, 2000).

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Importantly, the reduced concreteness theory suggests two mechanisms to explain the maintenance of worry. First, reduced concreteness is proposed to impair problem solving by limiting the production of the detailed, specific elaborations necessary to generate alternative plans or guide actions. Second, by minimising the amount of imagery produced in response to difficulties, reduced concreteness of thinking will reduce physiological and emotional responses (e.g., Borkovec & Hu, 1990; Hazlett-Stevens & Borkovec 2001; Vrana, Cuthbert, & Lang, 1986), thereby preventing emotional processing, which requires sufficient activation of emotional responses in order to be successful (Foa & Kozak, 1986). Thus, this theory explains how pathological worry can develop and persist: worry in response to a potential threat will be maintained and exacerbated when attempts to resolve or come to terms with the threat are unsuccessful.

In this paper, like Stöber and Borkovec (2002), we hypothesise that reduced concreteness theory applies to both rumination and worry. First, we note considerable overlap between anxious worry and depressive rumination: both are elevated in psychiatric populations, associated with adverse mood and involve prolonged, negative recurrent thinking. Measures of depressive rumination and anxious worry are highly correlated (Fresco et al., 2002; Segerstrom, Tsao, Alden, & Craske, 2000). These similarities have led to a debate as to the differences between rumination and worry, with some researchers proposing that worry and rumination share similar processes but involve different content (e.g., Segerstrom et al., 2000; Watkins, Moulds, & Mackintosh, 2005).

Second, we note the similarities between the definitions of reduced concreteness (abstract thinking) and overgeneral memory retrieval, defined as the tendency to recall categoric summaries of repeated past experiences (e.g., always making mistakes). Overgeneral memory recall is elevated in depressed patients compared to controls (for review see Williams, 1996). Furthermore, experimental studies implicate rumination in the maintenance of overgeneral memory (e.g., Watkins, Teasdale, & Williams, 2000; Watkins & Teasdale, 2001) suggesting that rumination may be associated with reduced concreteness of thought. However, given the different methodologies and theoretical constructs associated with overgeneral memory and reduced concreteness, testing whether depressed patients demonstrate reduced concreteness on the problem elaboration paradigm used by Stöber and colleagues is a necessary first step in investigating whether reduced concreteness theory also applies to recurrent negative thinking in depression.

We predicted that descriptions of problems about which people repeatedly dwell would be less concrete in currently depressed patients compared to a never-depressed control group. We also explored whether reduced concreteness was state or trait dependent by including a recovered depressed group.

2 Method

2.1 Participants

2.1.1 Currently Depressed Patients—Thirty volunteers meeting criteria for current Major Depressive Disorder on the Structured Clinical Interview for DSM-IV (SCID; Spitzer et al., 1996) were recruited from psychiatric outpatient clinics and a depression self-help

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charity. There were a number of co-morbid diagnoses including generalized anxiety disorder (GAD; n = 6), panic disorder (n = 10), specific phobia (n = 8), posttraumatic stress disorder (PTSD; n = 5), social phobia (n = 4), dysthymia (n = 2), binge eating disorder (BED: n = 1), and body dysmorphic disorder (BDD; n = 1).

2.1.2 Recovered Depressed Patients—Twenty-nine volunteers who had previously met but currently did not meet criteria for current Major Depressive Disorder on the SCID were recruited from a depression self-help charity and by local advertising. Three patients had co-morbid GAD. Additional comorbid diagnoses were: specific phobia (n = 5), social phobia (n = 4), panic disorder (n = 3), PTSD (n = 1), dysthymia (n = 1), and BDD (n = 1).

2.1.3 Never Depressed Controls—Thirty volunteers matched to the depressed group by age and gender, who had never met criteria for any current or past psychiatric diagnoses including Major Depressive Disorder, were recruited by local press, poster and e-mail advertising.

2.2 Instruments

2.2.1 Problem Elaboration Questionnaire (PEQ)—We used a modified version of the PEQ (Stöber & Borkovec, 2002), which instructs participants to provide a brief, open-ended written account of two major problems that they are currently experiencing and of three perceived negative consequences for each problem. To make the task relevant to negative recurrent thinking, we adapted the instructions and directed participants to: 'Please note down the two major problems or issues that you are currently repeatedly dwelling on and frequently thinking about. These problems or issues should be ones that you are greatly concerned about and spend a lot of time thinking about.'

Problem elaborations and perceived negative consequences were rated for level of concreteness according to Stöber and Borkovec's (2002) 1-5 Likert-scale, where 1 = abstract, 2 = somewhat abstract, 3 = neither-nor, 4 = somewhat concrete, 5 = concrete, using the definitions outlined earlier. Raters were blind to participants' diagnostic status. There was good inter-rater reliability with an independent second judge, also unaware of group (agreement on a random selection of 10% of all responses - i.e., 18 problem elaborations and 18 lists of perceived consequences, $r = 0.82$, $\kappa = 0.70$). We averaged ratings for the two problems to provide concreteness ratings for problem descriptions and consequences.

We note that the PEQ assessed recurrent thinking about problems in our samples and that in depressed patients, such negative recurrent thinking is likely to consist of both depressive rumination and anxious worry (as much as these constructs can be reliably separated; Fresco et al., 2002; Segerstrom et al., 2000). For the purposes of this study, we were interested in testing whether recurrent negative thinking in general would be associated with reduced concreteness in depressed patients, although we assumed that negative recurrent thinking in depressed patients would involve a substantial degree of depressive rumination. To further investigate the proportion of recurrent negative thinking on anxious themes (e.g., about threat, that is, worry as characterised by Segerstrom et al., 2000) versus depressive themes (e.g., about losses and depressive symptoms, that is rumination as defined by Nolen-Hoeksema, 1991), a judge blind to group rated the content of each problem elaboration on 0

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- “not at all” to 9 - “extremely” scales for the degree to which the description focused on: 1) themes of loss (e.g., loss of job, bereavement, separation), 2) themes of threat and 3) focus on depressive symptoms.

2.2.2 Beck Depression Inventory (BDI)—The BDI is a widely used 21-item self-report scale that indexes the presence and severity of depression symptoms over the past week. The BDI possesses strong test–retest reliability and high internal consistency, with alpha coefficients of 0.86 and 0.81 for psychiatric and non-psychiatric populations, respectively (Beck, Steer, & Garbin, 1988).

2.2.3 Ruminative Response Scale of the Response Styles Questionnaire (RRS)—The RRS is a 22-item instrument that assesses trait responses to depression symptoms; specifically, the tendency to ruminate in response to depressed mood. The RRS possesses good internal consistency and acceptable convergent and predictive validity (Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema & Morrow, 1993).

2.2.4 The Penn State Worry Questionnaire (PSWQ)—The PSWQ is a widely used, reliable and valid measure of pathological worry (Meyer, Miller, Metzger, & Borkovec, 1990). Respondents indicate on a 5-point scale (1 = not at all typical of me to 5 = very typical of me) the degree to which each of 16 statements apply to them. Items include “I am always worrying about something” and “I have been a worrier all my life”. The PSWQ possesses strong internal consistency (alpha = 0.95) and test–retest reliability (0.93) (Meyet et al., 1990).

2.3 Procedure

All participants completed written informed consent. Current and previous Axis I diagnoses were obtained from the SCID. Participants were informed that the study investigated problem solving and thinking in depression. The PEQ was administered as part of a battery of self-report measures, presented in randomised order.

3 Results

Since Stöber and Borkovec (2002) found reduced concreteness in patients with GAD, we analysed the data for both the full sample, and with patients who met co-morbid diagnostic criteria for GAD excluded. Tables 1 and 2 display means and standard deviations, results of univariate analyses of variance examining the main effect of group on each dependent variable, and results of post-hoc Scheffé tests for all variables for the full sample and the sample excluding GAD, respectively. Initial analyses with gender as a between subjects’ factor had no significant main effects or interactions so all analyses reported were collapsed across gender.

3.1 Background Variables

For both full and non-GAD samples, as expected, the currently depressed group and recovered depressed groups had significantly greater BDI, RRS and PSWQ scores than the never depressed group. The currently depressed group had significantly greater BDI

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and PSWQ scores but not RRS scores than the recovered depressed group. The currently depressed group was matched for age with the never depressed group but was older than the recovered depressed group (see Table 1, Table 2).

3.2 Concreteness of Problem Descriptions and of Perceived Consequences across Groups

With GAD excluded, as predicted, there were significant differences in concreteness across groups for problem descriptions, $F(2, 77) = 4.15$, $p < .05$, $\eta 2 = .10$, and negative consequences, $F(2, 77) = 10.92$, $p < .001$, $\eta 2 = .22$, reflecting less concrete problem descriptions and less concrete consequences in the currently depressed group than the never-depressed controls (Scheffé tests, $p < .05$, $p < .001$; effect sizes 0.71, 1.14) and the recovered depressed patients (Scheffé tests, $p < .05$, $p < .001$; effect sizes 0.63, 1.08). Concreteness of problem descriptions and consequences did not differ between the recovered depressed group and the never depressed group (both p's > .9). The same significant results were found when we repeated the analyses for the full sample (see Table 1). Moreover, and critically, when we conducted analyses of covariance with PSWQ score as a covariate (i.e., in order to control for any effect of worry), the pattern of findings remained unchanged.

3.3 Exploration of Content

Across all groups the content of the problems was focused more on loss than on threat, $t(78) = 5.68$, $p < .001$ (ratings of loss, $M = 5.29$, $SD = 1.63$; ratings of threat, $M = 3.78$, $SD = 1.31$). Furthermore, as expected if the PEQ was assessing depressive rumination, both patient groups focused on loss and on depressive symptoms more than the never depressed group. There was no difference between the currently depressed group, the recovered depressed group and the never-depressed group in the degree of threat-related content in their problems, which argues against the PEQ reflecting increased worry in the clinical groups. The equivalent pattern of results was found for the full sample (see Table 1 for details) and the sample excluding co-morbid GAD patients (see Table 2 for details).

4 Discussion

We proposed that the reduced concreteness theory of worry may be relevant to recurrent negative thinking in depression. As a preliminary test of this hypothesis, we predicted that currently depressed patients would show reduced concreteness in their descriptions of problems about which they repeatedly dwelled, compared to never depressed controls. This prediction was confirmed. Furthermore, repeated dwelling on problems remained associated with reduced concreteness, despite excluding co-morbid GAD and when covarying for extent of worry, suggesting that the phenomenon of reduced concreteness was not dependent on anxiety or worry. Furthermore, the content of the problem descriptions was focused on loss and symptoms of depression more than on threat suggesting that the PEQ task was assessing recurrent negative thinking that was more consistent with depressive rumination than with anxious worry (Nolen-Hoeksema, 1991; Segerstrom et al., 2000).

The currently depressed group had significantly less concrete problem descriptions than the recovered depressed group, who did not differ from the never depressed control group. The

absence of reduced concreteness in the recovered depressed group suggests that reduced concreteness may be state dependent and not a trait-like feature. Indeed, BDI scores were associated with reduced concreteness of problems (r = -.29, p < .001) and reduced concreteness of consequences (r = -.39, p < .001).

These findings provide further evidence of a qualitative overlap between two forms of recurrent negative thinking, that is, worry and rumination. In both depression and GAD, problems that people think about repeatedly (whether worry or rumination) show reduced concreteness, indicating a commonality in the process of recurrent thinking across the two disorders. Further, these results provide preliminary evidence that the reduced concreteness theory might be extended to patients with depression; that rumination, like worry, is associated with reduced concreteness, and that this may serve a cognitive avoidant function. In a sense this may appear counter intuitive; by definition, rumination is a repetitive, recyclic thinking style that in fact *promotes* focus on negative material. However, as is the case for worry, it may be that the lack of concreteness adopted when recurrently thinking about problems facilitates the avoidance of imagery and emotion. Thus, the proposed effects of reduced concreteness during worry on impairing problem solving, reducing emotional arousal and limiting emotional processing may also account for the maintenance of rumination. Clearly, our data only indicates a correlational association between problems about which depressed individuals think repetitively and reduced concreteness. The reduced concreteness theory predicts that reduced concreteness of problem descriptions causes *more* recurrent thinking. Future experimental studies would profitably manipulate concreteness of thinking during rumination to determine its causal effects on problem solving, emotional responses to (and thus degree of processing of) negative events, and the persistence and exacerbation of rumination.

Trait depressive rumination (RRS) was not associated with degree of concreteness (r = -.12, p = 0.25), although focus on loss and focus on symptoms during each problem elaboration were negatively correlated with degree of concreteness (respectively, r = -.31, p < .005; r = -.39, p < .001). We speculate that reduced concreteness for any problem requires repeated rumination on that particular problem: the RRS measures general tendency to ruminate but not degree of rumination about the identified problems, whilst focus on loss and symptoms do index rumination related to the identified problems.

We do not believe that the reduced concreteness in depressed patients is simply a secondary consequence of their tendency to recall overgeneral memories influencing their recollection and description of personal problems. First, we note that elevated overgeneral memory is a well-documented finding in recovered depression groups (Brittlebank, Scott, Williams, & Ferrier, 1993; Mackinger, Pachinger, Leibetseder, & Fartacek, 2000), and, thus, if reduced concreteness is a consequence of overgeneral memory recall, we would expect to see reduced concreteness in the recovered depressed group. We acknowledge that in the absence of direct assessment of overgeneral memory in this study, we cannot be definitive that this pattern of elevated overgeneral memory is replicated; nonetheless, elevated overgeneral memory in current and recovered depression is a highly robust finding. Second, in this study reduced concreteness was mood-state dependent whereas associations between overgeneral memory recall and current mood are generally weak (e.g., r = -0.01, see Williams, 1996).

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These findings argue against overgeneral memory as a cause of reduced concreteness (although overgeneral memory is encompassed within the definition of abstract thinking).

Limitations of the current study include: 1) the absence of psychiatric comparison groups, to determine the specificity of reduced concreteness to depression; 2) a relatively small sample, and younger recovered depressed group; 3) not knowing whether the reduced concreteness effect is only found following recurrent thinking about problems or is common to all thinking in depression. Comparing problems that were ruminated about to lesser and greater degrees (Stöber et al., 2000), and objectively indexing the frequency of rumination about individual problems would resolve this issue.

In conclusion, we found that for major problems that people repeatedly dwelled over (i.e., ruminated about), patients with current major depression used less concrete descriptions than recovered depressed patients and never-depressed controls, even when co-morbid GAD was controlled. These findings suggest that the reduced-concreteness theory of worry may be extended into recurrent thinking in depression.

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Table 1

***F* values, means and SD (in parentheses) for ANOVA by Group, for concreteness and content of problem elaborations, depressive symptoms, rumination and worry for full sample.**

	Currently depressed (n =30: M 10: F 20)	Recovered depressed (n = 29: M 13: F 16)	Never depressed (n = 30: M 9: F 21)	*F*
Age	40.3 (10.1)[a]	31.8 (12.8)[b]	38.0 (15.3)[a, b]	3.2 *
BDI	23.7 (8.1)[a]	9.2 (8.2)[b]	2.6 (2.8)[c]	74.5 ***
RRS	59.4 (11.3)[a]	54.6 (14.7)[a]	33.8 (10.6)[b]	36.8 ***
PSWQ	60.8 (10.6)[a]	52.6 (14.3)[b]	41.0 (10.9)[c]	20.3 ***
Concreteness				
Major problem	3.15 (0.96)[a]	3.78 (0.71)[b]	3.80 (0.82)[b]	5.7 *
Consequences	2.83 (0.87)[a]	3.68 (0.71)[b]	3.78 (0.81)[b]	14.1 ***
Content				
Threat	4.07 (1.40)[a]	4.01 (1.46)[a]	3.53 (1.17)[a]	1.4
Loss	6.12 (1.46)[a]	5.38 (1.52)[a, b]	4.52 (1.54)[b]	8.3 ***
Symptom-focus	4.87 (1.94)[a]	3.50 (1.75)[b]	2.65 (1.37)[b]	12.6 ***

Note. M is number of men, F is number of women. BDI, Beck Depression Inventory; RRS, Ruminative Response Scale of the Response Styles Questionnaire; PSWQ, Penn State Worry Questionnaire. Concreteness was rated on a five-point scale from Abstract (1) to Concrete (5). Threat, loss and symptom-focus were each rated on a 10 point scale from 0 to 9.

Means in the same row that do not share superscripts differ at $p < .05$ on post-hoc Scheffé tests.

F values refer to the univariate analyses of variance comparing each dependent variable across all three groups

* $p < .05$

** $p < .01$

*** $p < .001$

Table 2

***F* values, means and SD (in parentheses) for ANOVA by Group, for concreteness and content of problem elaborations, depressive symptoms, rumination and worry for sample with GAD cases excluded.**

	Currently depressed (n = 24; M 5: F 19)	Recovered depressed (n = 26; M 12: F 14)	Never depressed (n = 30: M 9: F 21)	*F*
Age	38.7 (10.2)[a]	29.6 (9.6)[b]	38.0 (15.3)[a, b]	4.5 *
BDI	24.0 (8.4)[a]	8.4 (7.9)[b]	2.6 (2.8)[c]	71.1 ***
RRS	58.4 (10.7)[a]	53.1 (14.5)[a]	33.8 (10.6)[b]	32.1 ***
PSWQ	59.3 (10.6)[a]	51.3 (14.2)[b]	41.0 (10.9)[c]	15.9 ***
Concreteness				
Major problem	3.17 (1.00)[a]	3.71 (0.74)[b]	3.80 (0.82)[b]	4.1 *
Consequences	2.83 (0.87)[a]	3.69 (0.72)[b]	3.78 (0.81)[b]	10.9 ***
Content				
Threat	3.85 (1.31)[a]	3.98 (1.46)[a]	3.53 (1.17)[a]	0.85
Loss	6.19 (1.33)[a]	5.33 (1.58)[a, b]	4.52 (1.54)[b]	8.2 ***
Symptom-focus	5.12 (2.01)[a]	3.38 (1.67)[b]	2.65 (1.37)[b]	14.6 ***

Note. M is number of men, F is number of women. BDI, Beck Depression Inventory; RRS, Ruminative Response Scale of the Response Styles Questionnaire; PSWQ, Penn State Worry Questionnaire. Concreteness was rated on a five-point scale from Abstract (1) to Concrete (5). Threat, loss and symptom-focus were each rated on a 10 point scale from 0 to 9.

Means in the same row that do not share superscripts differ at $p < .05$ on post-hoc Scheffé tests.

F values refer to the univariate analyses of variance comparing each dependent variable across all three groups

* $p < .05$

** $p < .01$

*** $p < .001$