Rumination and depression in Chinese university students: The mediating role of overgeneral autobiographical memory

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ARTICLE INFO

ABSTRACT

Objective: In this study, we examined the mediator effects of overgeneral autobiographical memory (OGM) on the relationship between rumination and depression in 323 Chinese university students.
Method: 323 undergraduates completed the questionnaires measuring OGM (Autobiographical Memory Test), rumination (Ruminative Response Scale) and depression (Center for Epidemiologic Studies Depression Scale).
Results: Results using structural equation modeling showed that OGM partially-mediated the relationship between rumination and depression ($\chi^2 = 88.61$, $p < .01$; RMSEA = .051; SRMR = .040; and CFI = .91). Bootstrap methods were used to assess the magnitude of the indirect effects. The results of the bootstrap estimation procedure and subsequent analyses indicated that the indirect effects of OGM on the relationship between rumination and depressive symptoms were significant.
Conclusion: The results indicated that rumination and depression were partially mediated by OGM.

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1. Introduction

In the past decade, there has been increased interest in examining negative thinking processes, such as rumination, as cognitive risk factors for depression (Rood, Roelofs, Bögels, Nolen-Hoeksema, & Schouten, 2009). In the context of depressive mood, Nolen-Hoeksema (1991) conceptualizes rumination as repetitive and passive thinking about one's symptoms of depression as well as the causes and consequences of those symptoms. A large body of research has attempted to understand the relationship between rumination and depression more fully (Spasojević & Alloy, 2001; Takano & Tanno, 2009; Watkins & Brown, 2002). A particularly robust finding indicates that rumination is associated with depression (Broderick & Korteland, 2004; Papageorgiou & Wells, 2003). As rumination plays a significant role in the promotion of depression, an understanding of its underlying mechanisms is essential (Watkins & Brown, 2002).

Twenty years of research using the Autobiographical Memory Test (AMT; Williams & Broadbent, 1986) has shown that overgeneral autobiographical memory (OGM) is a vulnerability factor for depression (Gibbs & Rude, 2004). In the AMT, respondents are asked to retrieve specific autobiographical memories of events in response to word cues. Each specific autobiographical memory refers to a particular personal event that did not last longer than one day (e.g., "my grandmother's funeral last year"). In contrast, overgeneral autobiographical memories are less specific, representing a summary of repeated events, and they are normally elicited using emotion cue words (Anderson, Goddard, & Powell, 2010). Key findings have suggested that individuals with depression are characterized by more OGM than nondepressed controls (Williams et al., 2007), and OGM has been proposed as a vulnerability factor for the onset (Mackinger, Loschin, & Leibetseder, 2000) and course of depression (Brittlebank, Scott, Williams, & Ferrier, 1993; Sumner, 2012). In addition, Dalgleish et al. (2007) stated that OGM indexes one or more of the fundamental cognitive processes that are closely linked to the onset, maintenance, and recovery from a variety of clinical and subclinical states.

Given that OGM is a vulnerability factor for depression, researchers have been interested in better understanding the factors that contribute to this cognitive phenomenon. Previous research findings suggest that rumination may not only confer vulnerability to depression, but it may also be associated with OGM. Empirical data suggest that individuals who exhibit tendencies for both rumination and OGM would be more likely to have more severe depressive episodes (Park, Goodyer, & Teasdale, 2004).

Kao, Dritschel, and Astell further proposed that individuals who exhibit rumination should be at higher risk for OGM (Kao, Dritschel, & Astell, 2006). Watkins and colleagues showed that by experimentally reducing rumination, autobiographical memory retrieval becomes more specific in depressed participants (Watkins & Teasdale, 2001). In addition, Sumner (2012) stated that two components of ruminative processing appear to be especially maladaptive for autobiographical memory specificity. These include: (1) adopting an abstract, analytical, and evaluative processing style that focuses on the causes, meanings, and consequences of one's experience, and (2) processing negatively valenced self-related material (Sumner, 2012). These findings were supported the hypothesis that rumination may have a role in the development of OGM (Sumner, 2012).

Together, the results of these studies suggest that more repetitive and passive thinking has a causal effect on OGM (e.g., Raes, Watkins, Williams, & Hermans, 2008; Sumner, 2012; Watkins & Teasdale, 2001). However, the hypothesis that OGM is a mediator between rumination and depression has not been fully tested, especially in nondepressed samples. Therefore, the aims of this study were (a) to examine the replicability of the associations between OGM, rumination, and depression, and (b) to investigate the hypothesis that OGM mediates the association between rumination and depression in a large sample of Chinese university students.

2. Methods

2.1. Participants

The participants were 323 undergraduates (74% female) at a university in Beijing. The mean age of the participants was 18.91 years (standard deviation [SD] = 1.35).

2.2. Materials

2.2.1. Ruminative Response Scale (Nolen-Hoeksema, 1991)

The Ruminative Response Scale (RRS) is designed to assess ruminative coping responses to depressed mood. The RRS has been shown to have good internal consistency and validity (Nolen-Hoeksema & Morrow, 1991). The scale contains 22 items, and the responses to each item are scored from 1 ('almost never') to 4 ('almost always'). The scores on all of the items are added to obtain the total score, which ranges from 22 to 88, with higher scores indicating higher levels of ruminative coping responses.

2.2.2. Center for Epidemiological Studies Depression Scale (Radloff, 1977)

The Center for Epidemiological Studies Depression Scale (CES-D) is a 20-item self-report measure designed to assess depressive symptoms in the general population. For each item, participants are asked to indicate how often they experienced the particular symptom over the last week. Responses range from 1 (rarely or none of the time) to 4 (most or all of the time). The scores on the CES-D range from 20 to 80, with higher scores indicating higher levels of depressive symptoms.

2.2.3. Autobiographical Memory Test (Williams & Broadbent, 1986)

In our study, the AMT was administered in an oral format (Raes, Hermans, de Decker, Eelen, & Williams, 2003). Participants were shown 12 cue words and 2 practice words (car and fridge) printed on flash cards. The test cues consisted of six negative (painful, horrible, sad, lonely, angry, and guilty) and six positive (proud, successful, honest, happy, funny, and brave) emotional cue words. The participants were asked to memorize one specific memory for each cue word (i.e., a particular event that lasted for no more than one day that happened on a particular day at least 1 week ago). Each cue word was presented for 60 s, and when the time limit was reached, the experimenter proceeded to the next cue word. The experimenters recorded the responses.

For each cue, the response was coded as either a specific memory or a nonspecific memory. Responses that described a particular event that lasted less than 1 day (e.g., "The moment I won the game") were coded as specific. Overgeneral memories were qualified as a categorical memory (e.g., "Having math class on Monday mornings"), an extended memory (e.g., "My holiday in Senegal last year"), no memory, or no response. Consistent with previous studies (Stange, Hamlat, Hamilton, Abramson, & Alloy, 2013), we report analyses in the current study using the total number of overgeneral memories to all cue words. We used the number of overgeneral memories as our focal predictor variable (minimum = 0; maximum = 12).

2.3. Procedures

After giving written informed consent, all participants were tested individually. The AMT was administered face-to-face in a quiet testing environment. Then participants completed the CES-D and RRS.

2.4. Statistical analyses

The mediation effect for OGM was tested using the two-step structural equation analysis procedure recommended by Gerbing and Anderson (1988). Firstly, the measurement model was tested to assess the extent to which each of the latent variables was represented by its indicators. If the measurement model was accepted, then structural equation modeling (SEM) with the maximum likelihood estimation in the AMOS 8.0 program was used.

The goodness of fit of the model was evaluated by using the following indices (Hu & Bentler, 1999; Quintana & Maxwell, 1999): chi-square statistics; root-mean-square error of approximation (RMSEA); standardized root-mean-square residual (SRMR): best if below .06; and comparative fit index (CFI): best if above .95. In addition, Sobel tests were conducted (Preacher & Hayes, 2004) to test the effect sizes and significance of the mediation effects for OGM directly.

The bootstrap estimation procedure in AMOS 8.0 was used to test the significance of the mediating effects of OGM. The basic principle for the bootstrapping approach is that the standard error estimates and confidence intervals (CIs), which are calculated based on the assumption of a normal distribution, will usually be imprecise because the indirect effect estimates generally do not follow a normal distribution (MacKinnon, Lockwood, & Williams, 2004). MacKinnon et al. (2004) have suggested that the bootstrap method yields the most accurate CIs for indirect effects. They recommended use of the percentile bootstrap, which provides a CI and has been shown to provide both reasonable control of type 1 errors and good statistical power. When examining a mediation effect using the percentile bootstrap method, the statistical package draws a large number of bootstrap samples (i.e., 1000). Then, for each sample, the indirect effect is estimated, yielding a bootstrap distribution of the estimates of the indirect effect. A null hypothesis can be rejected if zero is not included in the 95% CI of the bootstrap distribution. In subsequent analyses, the indirect effects and their associated 95% bias-corrected CIs were tested.