

Health anxiety, rumination, and negative affect: A mediational analysis

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Abstract

Objective: A ruminative cognitive style has been associated with a variety of mood and anxiety disorders. This study examined whether a ruminative cognitive style is associated with health anxiety, even when controlling for negative affect. **Method:** College students ($N=198$) completed measures of health anxiety, rumination, and negative affect and estimated the likelihood that ambiguous symptoms were indicative of catastrophic illnesses. These data were analyzed using structural equation modeling. **Results:** A ruminative cognitive style was both indirectly associated with health anxiety via

its strong relationship with negative affect and was also directly associated with health anxiety. Furthermore, catastrophizing ambiguous symptoms was also directly related to health anxiety. **Conclusion:** High health anxiety individuals not only hold dysfunctional beliefs about health and illness but they also think about their distress in a ruminative manner. A more complete cognitive-behavioral model of health anxiety should include not only cognitive contents (“what”) but also cognitive style (“how”).
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Keywords: Cognitive model; Health anxiety; Hypochondriasis; Rumination; Structural equation modeling

Introduction

Consistent with Warwick and Salkovskis’ [1,2] cognitive-behavioral model of hypochondriasis and health anxiety, much of the cognitive research in this area has focused on the beliefs and other cognitive contents that distinguish hypochondriacal individuals from non-health-anxious individuals. Thus, for example, there is considerable evidence that individuals high in health anxiety overestimate the frequency of serious illnesses [3–5], have narrower beliefs about what constitutes health [6], and make catastrophic interpretations of ambiguous symptoms [7–9]. These findings are robust regardless of whether health anxiety is treated as a continuous variable in samples drawn from the general population or whether clinical samples of individuals with hypochondriasis are studied [10]. Although there is some research indicating that hypochondriasis is

associated with a memory bias toward recalling pain-related words [11] and with Stroop interference for illness-related words [12], overall, less attention has been devoted to cognitive processes in health anxiety, and generally, those studies that have examined processes have not yielded effects as consistent or as large as those that have examined contents [10].

However, researchers have not examined how specific cognitive styles may contribute to anxiety. There are a number of reasons why a ruminative style, which “is the tendency to repetitively focus on symptoms of distress and possible causes and consequences of these symptoms without engaging in active problem solving” [13] (p. 198), is likely to play a role in health anxiety. Rumination about bodily concerns is a central characteristic of hypochondriasis, which is defined as a “preoccupation” with fears of having...a serious disease [14] (p. 504, emphasis added). In fact, rumination about illness may be the cardinal symptom of hypochondriasis [15]. Rumination has also been linked to a number of psychological disorders and conditions that are often comorbid with hypochondriasis or related to health anxiety, most notably depression and anxiety. Nolen-Hoeksema et al. [13,16] have demonstrated that a ruminative

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cognitive style predicts the development of depression and is linked to the severity of depressive symptoms [17,18]. Rumination is also predictive of anxiety symptoms [16], stress symptoms following a natural disaster [19], bulimic behavior [13], and substance abuse [13]. Finally, chronic rumination and worry appear to be related to a variety of physiological processes including hypertension, increased heart rate, elevated cortisol levels, and heightened immune system responses [20]. Thus, it is possible that rumination may be associated with health anxiety in part because it actually increases health risk.

Because of the strong relation between rumination and depression, and because of the high comorbidity between hypochondriasis and depression [21,22], a correlation between rumination and health anxiety may simply reflect the variance that each of these constructs shares with depression/negative affectivity. If rumination is to be conceptually meaningful, it should predict health anxiety even when controlling for negative affect.

Ideally, a complete cognitive model of health anxiety will specify both how and what individuals with high levels of health anxiety think. The present study is a preliminary attempt to model how a particular cognitive style (rumination) and cognitive content (overestimating the likelihood that ambiguous symptoms are indicative of catastrophic illnesses) may contribute to health anxiety. Because health anxiety appears to exist on a continuum [23], and because studies that have examined cognitive factors in health anxiety have yielded similar (although slightly smaller) effect sizes as studies that have used clinical samples [10], this initial study used a college student sample. Students completed self-report measures of health anxiety, rumination, negative affect, and dysfunctional beliefs about the relation between symptoms and catastrophic illnesses. Structural equation modeling was used to estimate the contributions of rumination (controlling for negative affect) and dysfunctional beliefs to self-reported health anxiety.

Method

Participants

The participants were 198 college students drawn from psychology classes who received course credit for their participation. Almost half of the participants reported being African-American (49.0%), followed by Caucasian (44.4%), and others (6.6%). Approximately 76% of the participants were female ($n=151$). The participants ranged in age from 18 to 52, with a mean age of 21.1 (S.D.=4.1).

Materials and procedures

After consenting to participate, the students completed a set of self-report questionnaires. To control for order effects, the measures were counter-balanced into two different

orders. Participation lasted approximately 1 hour. Only those questionnaires that were included in the current analysis are described here.

In order to avoid problems with model identification, we followed the recommendations of Kenny et al. [24] and used at least three manifest indicators for each latent variable. In cases where measures of the constructs yielded three or more subscales, subscale scores were used as indicators. In cases where fewer than three or no subscales were yielded (i.e., catastrophizing and rumination), three indicators were derived via a principal components analysis with a Promax rotation and by forcing a three-factor solution. All of the factors had eigenvalues greater than 1, except for the third factor from the catastrophizing scale which had an eigenvalue of .989. Indicators were derived by averaging item scores from items with salient rotated pattern coefficients. All of the items from these scales had loadings of at least .36 on one of the factors, so no items were excluded. Although this technique would not be recommended for determining the factor structure of a measure (the measures of catastrophizing and rumination were likely unidimensional), it served as a nonarbitrary method for creating packets of indicators for the structural model.

The Illness Attitudes Scale (IAS) [25] is a reliable and valid [26] measure of health anxiety. Although the IAS includes nine subscales, Kellner et al. [25] identified five subscales (i.e., worry about illness, concern about pain, hypochondriacal beliefs, disease phobia, and bodily preoccupation) on the IAS as the most relevant for assessing hypochondriasis. However, because the worry about illness scale could be seen as overlapping conceptually with rumination, it was not used as an indicator of health anxiety. The remaining four scales were used as the indicators of health anxiety in the structural model.

The 22-item Rumination Scale (RS) from the Response Style Questionnaire [19] was used to assess a ruminative cognitive style. Respondents use a four-point scale to indicate the extent to which they ruminate when they feel sad or anxious (e.g., “I think about how hard it is to concentrate”). The RS has acceptable test–retest reliability [15] and validity [16,19]. It had excellent internal consistency in the current sample ($\alpha=.93$). Because the RS yields a single score, three indicators were derived by retaining three components from a principal components analysis and rotating using the Promax criterion, which allows correlation between the rotated components.

The Mood and Anxiety Symptom Questionnaire (MASQ) [27] is a 90-item questionnaire that is derived from Watson and Clark’s [28] tripartite model of depression and anxiety. The MASQ has demonstrated excellent reliability and validity [29,30]. Three of the five MASQ scales are general distress scales that assess negative affect—General Distress: Mixed (GDM, 15 items), General Distress: Anxiety (GDA, 11 items), General Distress: Depressed (GDD, 12 items). These three scales, which served as indicators of negative affect in the structural model, were internally consistent in

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