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Relationships between rumination, worry, intolerance of uncertainty and metacognitive beliefs

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ABSTRACT

Rumination and worry are two types of repetitive negative thinking known to contribute to psychopathology. This study aimed at investigating their relationships with symptom levels of depression and anxiety and to extend previous research by: (1) comparing a dysphoric sample to a community sample, and (2) by including simultaneously two variables with explanatory potential for worry and rumination: intolerance of uncertainty and metacognitions regarding benefits of repetitive thinking. To allow replication of previous findings in nonclinical samples the dysphoric ($n = 71$) and the non-dysphoric community participants ($n = 86$) received the same self-report measures where possible. Consistent with previous results rumination, depression, worry and anxiety were all significantly correlated. Relations in the dysphoric sample were lower than in the community sample. It was concluded that negative persistent thinking and psychopathology have to be examined in clinical groups varying in anxiety and depression and in cognitive as well as arousal-related symptom profile. Intolerance of uncertainty and metacognitive beliefs were strongly related to rumination and depression, supporting their suggested explanatory potential and the transdiagnostic approach adopted here.

1. Introduction

Worry and rumination are cognitive processes characterized by thinking in an elaborate, repetitive way about personal concerns with difficulties terminating these chains of thoughts. These processes constitute core variables in current anxiety and depression models. Worrying is the central criterion of Generalized Anxiety (American Psychiatric Association, 1994), and is assumed to maintain anxiety by its verbal, abstract, arousal-reducing way of thinking about potential threats and uncertainties (e.g. Borkovec, Alcaine, & Behar, 2001). Borkovec, Robinson, Pruzinsky, and DePree (1983) define worrying as "...an attempt to engage in mental problem-solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes..." (p. 10). Rumination according to Nolen-Hoeksema's definition (1991) is a response style to depressed mood characterized by repetitive thinking about one's symptoms, their possible causes and consequences. The empirical evidence linking rumination to depression is even stronger than the evidence linking worry to anxiety. Rumination is significantly associated with vulnerability to depressed mood and other symptoms and trait markers of depression, with the onsets of episodes of Major Depression, and longer and/or more severe episodes (Nolen-Hoeksema, 2004; Spasojevic, Alloy, Abramson, MacCoon, & Robinson, 2004).

Current theories revolve around why people engage in worrisome or ruminative thinking and what exactly makes these processes dysfunctional. Is it high self-focused attention as outlined by Ingram (1990), or the abstractness of thinking as discussed recently by Watkins (2008), or the perceived benefit as advocated by Wells and Papageorgiou (2004) and pursued in this study? Research related to these questions has with few exceptions been conducted in the worry–anxiety or the rumination–depression domain. The aim of this study is to explore these processes and relations across these domains. Harvey, Watkins, Mansell, and Shafran (2004) advocated a change from a disorder-focus regarding cognitive behavioural processes to an across-disorder-focus. This "transdiagnostic" approach is adopted here because of its greater transfer potential for theory and intervention developments.

There are a few previous studies which have addressed overlapping versus differentiating features of worry and rumination in relation to both, anxiety and depression. Segerstrom, Tsao, Alden, and Craske (2000) were the first to assess all four constructs. Using structural equation modelling they demonstrated that "repetitive thought", the latent variable derived from worry and rumination measures, was associated with anxiety *and* depression in their student and their clinical sample (self-referred outpatients with anxiety and affective disorders). Worry items correlated with depression and anxiety after partialing out rumination items, and rumination was correlated with both anxiety and depression, too, after partialing out worry items. Thus, repetitive thoughts did not differentially relate to anxiety or depression (with the excep-

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tion of an additional rumination path in higher depression). Findings by Fresco, Frankel, Mennin, Turk, and Heimberg (2002) point in a similar direction. Their Worry Engagement and their Dwelling on the Negative (or rumination) factor correlated significantly with each other and with both, anxiety and depression-scores in a nonclinical student sample. The fact that the original worry and rumination items loaded on different factors also indicates some distinctiveness. Muris, Roelofs, Meesters, and Boomsma (2004) extended this research by demonstrating in a nonclinical sample that rumination and worry correlated more substantially with anxiety than with depression, and that rumination no longer was predictive of depression after controlling for worry.

Considering only studies which had assessed all four variables, only Segerstrom et al. (2000) had included a clinical sample. Some studies however strongly suggest one should examine relations between worry, anxiety and depression in samples varying in the degree of affective psychopathology. While studies in clinical samples (Brown, Antony, & Barlow, 1992; Meyer, Miller, Metzger, & Borkovec, 1990) did not find significant relationships between worry, anxiety and depression, correlations in student or community samples were substantial ($r > 0.60$; e.g. Davey, 1994; van Rijsoort, Emmelkamp, & Vervaeke, 1999). Thus, beyond replicating the associations between the two cognitive processes and the two types of psychopathology the first aim of this study was to extend findings to a sample with elevated depression. Referring to Meyer et al. (1990) and Brown et al. (1992) relations between the four variables are expected to be less strong in dysphoric/depressed than in community participants.

Secondly, the study aimed to explore factors which might explain why people repetitively think worrysome or ruminative thoughts. Starting with the "transdiagnostic" assumption of common factors across the anxiety and depression syndromes, repetitive thinking might be explained by the functions worry and rumination fulfill. Persons who worry or ruminate report expecting positive consequences of their thinking, and these metacognitive beliefs regarding the functional importance of their thinking might reinforce it. Intolerance of uncertainty might be less conscious to persons who use repetitive thinking to reduce their uncertainty, but the link of this variable to worry is well documented and one of the advantages of the transdiagnostic perspective is transfer of assumptions, in this case to the rumination–depression domain. Positive metacognitions and intolerance of uncertainty are both seen as possible functional factors in repetitive thinking across psychopathological syndromes and are briefly reviewed next.

Freeston, Rhéaume, Letarte, Dugas, and Ladouceur (1994) have linked metacognitive beliefs to the worry context. They assessed metacognitive beliefs regarding positive consequences of worry (e.g. finding solutions), and beliefs regarding the potential of worry to prevent negative outcomes. In the system of Wells (1995), both types are positive metacognitions, implying expected advantages of worry. Positive metacognitive beliefs were significantly related to worry as well as anxiety and depression in nonclinical participants (Freeston et al., 1994), and they contributed to the persistence of worrying (e.g. Wells, 1995). Watkins and Baracaia (2001) have studied metacognitions in relation to rumination and found strong associations to rumination intensity. Papageorgiou and Wells (2004) suggested elaborate models on the role of metacognitive beliefs for depression (based on previous studies covering the clinical and nonclinical range, e.g. Papageorgiou & Wells, 1999; Papageorgiou & Wells, 2003), which were recently confirmed regarding predictions in nonclinical samples (Roelofs et al., 2007), and in participants at risk for depression because of previous episodes (Watkins & Moulds, 2005).

Regarding intolerance of uncertainty Krohne (1993) has proposed that patients with Generalized Anxiety are not only intolerant to arousal but also to uncertainty. Worry is assumed to reduce arousal by the abstract, verbal, conceptual way in which fearful situations are processed (e.g. Borkovec et al., 2001), and worry might be experienced as reducing uncertainty, too. Referring to this model Freeston et al. (1994) defined intolerance of uncertainty as "emotional, cognitive and behavioral reactions to ambiguous situations, implications of being uncertain, and attempts to control the future" (p. 791), and developed a measure (IU), which correlated significantly with both BAI ($r = 0.57$) and BDI ($r = 0.52$). In summarizing different studies, Dugas, Schwartz, and Francis (2004) claim that IU has been found the best predictor of worrying in nonclinical and clinical populations. According to this literature worry is reinforced by its experienced benefit of reducing uncertainty.

To date there is no study, which simultaneously assessed intolerance of uncertainty and positive metacognitive beliefs in depressed/dysphoric participants together with rumination, worry, depression and anxiety. We expect intolerance of uncertainty and positive metacognitions to be similarly related to worry and rumination and to contribute to both, depression and anxiety.

2. Method

2.1. Participants

A sample of 71 dysphoric participants was recruited via advertisement which asked for individuals complaining about depressive symptoms. It consists of 48 females and 23 males with a mean age of 35.2 years (17–65). The sample can be characterized as moderately depressed (Hautzinger, Bailer, Worall, and Keller (1995): BDI scores were 12 and above with a mean in the clinical range (22.3, SD = 7.95). BAI scores ranged from 0 to 48 with a mean of 22.04 (SD = 11.73).

Nonclinical participants were recruited by students or staff in their community environment (e.g. sport and health clubs, church, libraries). This sample ($n = 86$) consisted of 49 females and 37 males with a mean age of 29.6 years (19–56). Mean depression ($M = 5.1$, SD = 4.62) and anxiety-scores ($M = 7.6$, SD = 6.27) were in the nonclinical range (see result section for group differences in depression and anxiety). The dysphoric participants were significantly older than the community participants ($t = -3.2$, $p < 0.01$). We tested the influence of age on means and correlations and found no difference. Age was not related to any variable. The majority of both groups had a medium to high level of education, but fewer community participants fulfilled university requirements or actually attended university.

2.2. Measures

The most widely used rumination measure is a subscale of the Response Styles Questionnaire (RSQ; Nolen-Hoeksema, 1991), which assesses how frequently one thinks about symptoms of depression and their possible causes and consequences when feeling sad and depressed. Internal consistency for this 21-item subscale is good (Cronbach's Alpha = 0.90; Nolen-Hoeksema, 2004). Although there is a lively debate on further dismantling rumination (Treynor, Gonzalez, & Nolen-Hoeksema, 2003), we choose the original subscale to be compatible with the previous studies. Additional calculations were done with the brooding factor suggested by Treynor et al. (2003).

Comparable to previous studies the "general worry" subscale of the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990; Molina & Borkovec, 1994) was used to assess intensity, excessiveness and perceived uncontrollability of worry by 11 items worded in the worry direction (Cronbach's Alpha = 0.92). The 5-item "not worry" – subscale was omitted in analyses because of its low internal consistency (Cronbach's Alpha = 0.62, e.g. van Rijsoort et al., 1999).