



Relationship between trait repetitive negative thinking styles and symptoms of psychopathology



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ABSTRACT

Anticipatory processing (AP) is a repetitive negative thinking (RNT) style associated with social anxiety that has been excluded in studies of repetitive thought (e.g., worry and rumination). The following studies examined whether individual differences in AP were associated with social anxiety symptoms above and beyond worry and rumination in undergraduate samples. Study 1 ($N = 326$) examined the role of trait AP, worry, and rumination in predicting symptoms of social anxiety, depression, and trait anxiety and found that all three RNT styles predicted social anxiety, but only worry predicted trait anxiety and only rumination predicted depressive symptoms. Study 2 ($N = 353$) used a prospective design to examine how cognitions and symptoms reciprocally interact and found that only worry predicted future social anxiety, but social anxiety predicted later AP and rumination. Results suggest worry may serve as a risk factor for social anxiety, whereas AP and rumination may serve as maintenance factors. Furthermore, worry and rumination may be transdiagnostic, whereas AP may be specific to social anxiety.

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1. Introduction

Several studies have examined whether individual differences in repetitive negative thought (RNT) styles contribute to the development and maintenance of psychopathology. This research has focused primarily on worrisome and ruminative cognitive styles. The former is a core feature of Generalized Anxiety Disorder (GAD; e.g., Borkovec, 1994), but elevated worry also has been implicated in other psychological symptoms (e.g., Starcevic et al., 2007). Similarly, rumination is a core feature of depression (e.g., Nolen-Hoeksema, Parker, & Larson, 1994) but is elevated in other disorders as well (Rector, Antony, Laposa, Kocovski, & Swinson, 2008). Therefore, research examining multiple RNT styles simultaneously is becoming increasingly important.

Recent research in social anxiety has identified a cognitive style called anticipatory processing (AP) as a form of anxiety-related RNT that may be distinct from worry. Those high in trait AP precede social interactions by thinking of past social failures, rehearsing what they will say, and brainstorming how to escape or avoid the situation (Hinrichsen & Clark, 2003). As a result, anticipators experience increases in anxiety, negative interpretations of social information, self-focused attention, negative predictions of their

appearance, and post-event rumination (Grant & Beck, 2010; Hinrichsen & Clark, 2003; Mills, Grant, Judah, & Lechner, in press; Mills, Grant, Judah, & White, in press; Vassilopoulos, 2004, 2005, 2008; Wong & Moulds, 2011). Mills, Grant, Lechner, and Judah (2013) suggested that anxious anticipation can serve both preparatory and avoidance functions. The avoidance function appears to be particularly problematic, as it was associated with social anxiety symptoms and self-reported anxiety prior to a social interaction. However, individuals who engage in preparatory cognitions did not experience these negative outcomes.

While much research has examined the cognitive profiles of these disorders independently, recent research has suggested that negative thinking is unitary (McEvoy, Mahoney, & Moulds, 2010). This literature suggests RNT is a shared vulnerability factor among disorders and therefore downplays differences between cognitive styles. However, other research has found that these processes may uniquely influence symptoms (e.g. Fresco, Frankel, Mennin, Turk, & Heimberg, 2002; Goring & Papageorgiou, 2008), suggesting that it is important to examine specific relationships that may aid discriminating between conditions. Distinct factors within these RNT styles have different predictive properties (i.e., brooding/reflective rumination; Treynor, Gonzalez, & Nolen-Hoeksema, 2003; avoidant/preparatory anticipation; Mills et al., 2013) suggesting that collapsing all RNT styles into one may conceal important differences. Furthermore, less research (if any) has examined AP alongside worry and rumination, despite its proposed role in the maintenance of social fears. Examining AP with other processes

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can inform our understanding of anxiety and depressive symptoms in general, as well as offer additional evidence about the potential incremental validity of (or redundancy between) these processes. This is particularly crucial given the high rates of comorbidity between SAD, GAD, and depression (Belzer & Schneier, 2004).

The purpose of Study 1 was to determine whether anxious anticipation is associated with symptoms of psychopathology above and beyond worry and ruminative cognitive styles. If so, it would suggest that anxiety-related cognitions are multifaceted and distinct from depressive cognitions. The goal of Study 2 was to prospectively examine the reciprocal relationship between individual differences in trait RNT styles and symptoms of psychopathology to determine which trait negative cognitive styles serve as risk factors for the development of symptoms.

2. Study 1

Study 1 examined the relationship between AP, worry, rumination (and their factors, if applicable), and social anxiety symptoms, depressive symptoms, and trait anxiety. Undergraduates were used to evaluate a wide range of scores for trait cognitive styles and symptomatology, as well as to minimize the possibility that diagnostic categories confound the effects of symptoms between highly comorbid conditions (e.g., Mennin, Heimberg, Fresco, & Ritter, 2008). It was expected that higher levels of AP, and more specifically, avoidance-related AP, would be associated with social anxiety above and beyond worry and rumination, even when controlling for depression and trait anxiety.

2.1. Materials and methods

2.1.1. Participants

The sample for Study 1 consisted of 326 participants at a large Midwestern university with a mean age of 20.0 years ($SD = 2.80$). They were primarily female (65.7%) and Caucasian (85.6%). Green (1991) suggests that a sample of at least 106 would be necessary for adequate power for these analyses.

2.1.2. Measures

Anticipatory Social Behaviours Questionnaire (ASBQ; Hinrichsen & Clark, 2003). The ASBQ is a 12-item measure that assesses trait AP with an Avoidance (e.g., "I make a conscious effort not to think about the situation") and a Preparation factor (e.g., "I go over in detail what might happen"). Responses range from 1 (Never) to 4 (Always). It has high internal consistency ($\alpha = .88$; Hinrichsen & Clark, 2003). Cronbach's alpha for the current study was .91 (Avoidance $\alpha = .82$, Preparation $\alpha = .82$).

Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990). The PSWQ is a 16-item questionnaire that measures trait tendency to worry (e.g., "My worries overwhelm me."). Response options range from 1 (Not at all typical of me) to 5 (Very typical of me). The PSWQ has high internal consistency (Meyer et al., 1990), including in the current study ($\alpha = .94$).

Ruminative Responses Scale (RRS; Nolen-Hoeksema & Morrow, 1991; Treynor et al., 2003). The revised RRS contains 10 items and assesses trait rumination (unconfounded with depressive symptoms) using two factors, Brooding (e.g., "Think 'What am I doing to deserve this?'") and Reflection (e.g., "Write down what you are thinking and analyze it"). Responses range from 1 (Almost never) to 4 (Almost always). The revised RRS has good internal consistency ($\alpha = .90$; Treynor et al., 2003). For the current study, internal consistency was high for the full scale ($\alpha = .92$) and good for Brooding ($\alpha = .88$) and Reflection ($\alpha = .86$).

Social Interaction Anxiety Scale, Straightforward Items (S-SIAS; Mattick & Clarke, 1998; Rodebaugh, Woods, and Heimberg, 2007).

The SSIAS assesses trait anxiety in social interactions. The revised (Rodebaugh et al., 2007) 17-item SSIAS consists of only positively worded items. It has response options ranging from 0 (Not at all characteristic of me) to 4 (Extremely characteristic of me) and good convergent validity (Rodebaugh et al., 2007). Internal consistency in this study was high ($\alpha = .94$).

Zung Self-rating Anxiety Scale (SAS; Zung, 1971). The SAS is a measure of trait anxiety. It contains 20 items ranging from 1 (Little/none of the time) to 4 (Most/all of the time). The SAS has good internal consistency ($\alpha = .81$), including in the present study ($\alpha = .88$).

Center for Epidemiological Studies Scale for Depression (CES-D; Radloff, 1977). The CES-D assesses trait depressive symptoms. It consists of 20 items with responses ranging from 0 (Rarely/none of the time) to 3 (Most/all of the time). Internal consistency for the CES-D is high (Radloff, 1977). Cronbach's alpha was high in the current study ($\alpha = .90$).

2.1.3. Procedure and analyses

All procedures were approved by the university's Institutional Review Board. Subjects were recruited through an online research participation system. After reading and signing an online consent form, participants were given a URL to access the questionnaires using an online survey website.

Data were analyzed using three separate regressions with S-SIAS, CES-D, and SAS scores as DVs, and RNT (ASBQ, PSWQ, RRS) and comorbid symptom (S-SIAS, CES-D, and SAS, except what was being used as the DV) variables as IVs.

2.2. Study 1 results

Approximately 28%, 26%, and 29% of participants fell at or above the elevated range for social anxiety (≥ 28 on the S-SIAS; Rodebaugh et al., 2011), worry (≥ 62 on the PSWQ; Behar, Alcaine, Zuellig, & Borkovec, 2003), and depressive symptoms (≥ 16 on the CES-D; Radloff, 1977), respectively. This degree of symptom severity is consistent with similar studies (e.g., Grant et al., in press).

Results can be found in Table 1. Multicollinearity was not a concern (max $VIF = 3.04$). For the first analysis, Avoidance, Preparation, Reflection, Brooding, PSWQ, CES-D, and the SAS were regressed on the S-SIAS. The model was significant. Avoidance, worry and Brooding significantly predicted social anxiety scores and the Preparation subscale negatively predicted social anxiety. Trait anxiety was the only symptom measure that significantly predicted social anxiety.

The model predicting trait anxiety also was significant. Worry was the only cognitive process that predicted trait anxiety, and depression and social anxiety also were significant.

Finally, the model predicting depression scores was significant. Reflection and Brooding were the only cognitive processes that significantly predicted depression. Trait anxiety was the only significant symptom measure.

3. Study 2

When controlling for depressive symptoms and trait anxiety, Study 1 found that all three cognitive styles predicted trait social anxiety. These findings suggest that social anxiety may be characterized by the presence of multiple forms of RNT, whereas general trait anxiety and depressive symptoms may be better characterized by individual differences in specific forms of RNT. Study 2 expanded upon Study 1 by prospectively examining the relationship between AP, worry, and rumination on symptoms after approximately 4–5 weeks. Based on Study 1, it was expected that all three cognitive styles would predict Time 2 social anxiety. It also was expected that

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