

Negative self-focused cognitions mediate the effect of trait social anxiety on state anxiety

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Abstract

The cognitive model of social anxiety predicts that negative self-focused cognitions increase anxiety when anticipating social threat. To test this prediction, 36 individuals were asked to anticipate and perform a public-speaking task. During anticipation, negative self-focused cognitions or relaxation were experimentally induced while self-reported anxiety, autonomic arousal (heart rate, heart rate variability, skin conductance level), and acoustic eye-blink startle response were assessed. As predicted, negative self-focused cognitions mediated the effects of trait social anxiety on self-reported anxiety and heart rate variability during negative anticipation. Furthermore, trait social anxiety predicted increased startle amplitudes. These findings support a central assumption of the cognitive model of social anxiety.

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Introduction

The cognitive model of social anxiety (Clark & Wells, 1995; Hofmann, 2007; Rapee & Heimberg, 1997) predicts that, when confronted with social threat, socially anxious individuals shift their attention focus inward onto negative self-focused cognitions, leading to heightened social anxiety and subsequent avoidance behaviors. There is evidence for the notion that socially anxious individuals have more negative and self-deprecating cognitions in socially threatening situations than healthy individuals (Clark & Wells, 1995; Hackmann, Clark, & McManus, 2000; Hackmann, Surawy, & Clark, 1998; Stopa & Clark, 1993). Socially anxious individuals typically monitor their internal state in the face of social threat, leading to increased self-reported anxiety (Hofmann & Barlow, 2002; Spurr & Stopa, 2002; Woody, 1996). Successful treatment is associated with decreased self-focused attention (Hofmann, 2000; Wells & Papageorgiou, 1998; Woody, Chambless, & Glass, 1997), which is correlated with changes in social anxiety, especially among individuals

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who receive cognitive behavioral interventions (Hofmann, Moscovitch, Kim, & Taylor, 2004). When healthy individuals anticipate a public-speaking task with a thought protocol imitating the cognitive style of socially anxious individuals, the participants' self-reported anxiety is comparable to that of high socially anxious individuals (Hinrichsen & Clark, 2003; Vassilopoulos, 2005). It has further been shown that the estimated cost of social mishaps partially mediates therapy success (Hofmann, 2004). This is consistent with cross-sectional studies suggesting that cognitive variables, such as self-focused attention (Kashdan & Roberts, 2004), perception of emotional control (Hofmann, 2005), and evaluation of one's own performance (Perini, Abbott, & Rapee, 2006), are causally related to social anxiety. Nevertheless, no study has demonstrated experimentally that anxiety in anticipation of a socially threatening situation is cognitively mediated—one of the core assumptions of the cognitive model. As a result, some authors have recently questioned the cognitive mediation model of social anxiety (e.g. Longmore & Worrell, 2007).

To examine whether cognitions mediate social anxiety, which is an important prediction of the cognitive model, we assessed anxious responding during anticipation of public speaking, the most commonly feared social situation by socially anxious individuals and the general population (Mannuzza, Schneier, Chapman, & Liebowitz, 1995; Pollard & Henderson, 1988). We expected that trait social anxiety would predict increases of acute social anxiety in response to this situation. To examine the role of cognitions as a mediator, we induced negative self-focused cognitions with a script developed by Hinrichsen and Clark (2003) and compared this to relaxation instructions that encourage participants to focus their attention away from negative cognitions (Hudetz, Hudetz, & Reddy, 2004).¹ Therefore, we expected greater anxiety and negative cognitions during negative anticipation than during baseline and relaxed anticipation. Moreover, we expected that task-induced changes would be mediated by corresponding differences in the amount of negative cognitions.

In addition to self-report measures, we examined physiological correlates of trait social anxiety (Dewar & Stravynski, 2001; Hofmann, Heinrichs, & Moscovitch, 2004). Heart rate variability in the high-frequency spectrum (HRV-HF, Camm et al., 1996) is a commonly used index of respiratory sinus arrhythmia and primarily reflects parasympathetic influence on heart rate (see Grossman & Taylor, 2007, for a discussion of interpretative issues and further influencing factors). Between-subjects differences have been associated with emotional reactivity (Beauchaine, 2001; Thayer & Brosschot, 2005) and acute shifts of HRV-HF have been linked to self-regulatory efforts of emotional responding (Beauchaine, 2001; Porges, 1995; Thayer & Lane, 2000). Therefore, we expected an inverse relationship of between-subjects' levels of HRV-HF, and the level of anxiety as well as the amount of negative cognitions while anticipating public speaking. Furthermore, we expected that higher levels of trait social anxiety would predict stronger task-induced within-individual decrease of HRV-HF. Moreover, we expected that this contingency would be mediated by negative cognitions. In addition, we used the startle paradigm to probe the activation of avoidance tendencies by affective information processing (Bradley, Codispoti, & Lang, 2006; Vrana, Spence, & Lang, 1988), assessed skin conductance level (SCL) as an index of distress-related sympathetic arousal (e.g. Boucsein, 1992), and heart rate as a general indicator of physiological activation (e.g. Alpers, Wilhelm, & Roth, 2005). In line with previous reports (e.g. Mauss, Wilhelm, & Gross, 2004), we expected general stress-related activation in SCL and HR in anticipation of public speaking, but no association with trait social anxiety. For startle amplitude, we expected similar effects as for self-reported anxiety.

Method

Participants

We recruited 36 undergraduate students at Boston University with a wide range of trait social anxiety ($M = 54.48$, $SD = 23.79$, $Min = 8.80$, $Max = 99.32$) as measured with the social phobia subscale of the Social Phobia and Anxiety Inventory (SPAI: Turner, Beidel, Dancu, & Stanley, 1989), a well-established self-report measure of trait social anxiety with excellent psychometric properties (Turner, Stanley, Beidel, & Bond, 1989). The internal consistency of the SPAI social phobia subscale in the current sample was .96. Overall, our sample

¹We consider this to be a better control condition than anticipation without a task, because it actively counteracts the default reaction of socially anxious individuals to focus their attention on negative self-related cognitions when anticipating social threat.

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