



## Effect of self-focused attention on post-event processing in social anxiety

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### ABSTRACT

The study investigated the relationship between self-focused attention (SFA) and post-event processing (PEP) in social anxiety. SFA is the process of directing attention to internal stimuli during a social interaction. PEP is a detailed review of performance following an interaction. Highly socially anxious students ( $N = 82$ ) were randomly assigned to a high SFA ( $n = 40$ ) or low SFA condition ( $n = 42$ ) and completed baseline measures of social anxiety, depression, trait SFA, and trait rumination. After SFA was manipulated via instructions, participants engaged in a 5-min unstructured conversation with a confederate, followed by a manipulation check. PEP was assessed the next day online. The high SFA group reported a similar amount of positive PEP but more frequent negative PEP over the 24-h period compared to the low SFA group. These results provide support for a causal relationship between SFA and PEP and have important applications for the development of effective cognitive-behavioural interventions.

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Social anxiety disorder (SAD), or social phobia, is a common and distressing disorder that begins in the late teens and proceeds in a chronic and continuous course (American Psychiatric Association, [APA], 2000). Because individuals with SAD display an irrational and persistent fear of negative evaluation in social or performance situations, when exposed to such situations, they react with intense anxiety and distress (APA, 2000). Although there is currently no consensus on the causes of SAD, several cognitive-behavioural models have been proposed to account for its chronic course (e.g., Clark & Wells, 1995; Rapee & Heimberg, 1997).

Cognitive-behavioural models generally rest on the premise that socially anxious individuals engage in biased cognitive processing. Clark and Wells (1995), for example, proposed that when socially anxious individuals enter into feared social situations, negative expectations about performance are activated. These expectations, which focus on the high probability of failure and the catastrophic consequences of showing anxiety, result in an increased sense of threat. In response to perceived threat, the individuals shift their attention from observation of others to detailed monitoring of themselves and their internal anxiety-related responses. This self-focused attention has the effect of enhancing awareness of negative interoceptive information, which is then used to generate a negative self-image believed to be an accurate representation of

the self. In addition, following the conclusion of the event, socially anxious individuals engage in post-event processing during which they repetitively dwell on their performance. Post-event processing has the effect of increasing anticipatory anxiety, which reactivates the original set of negative expectations and contributes to the avoidance of future social events. Thus, these cognitive processes that occur prior to, during, and following the event create a cycle of dysfunctional thinking that maintains social anxiety.

The Clark and Wells (1995) model and other cognitive-behavioural models therefore imply that the cognitive processes involved in maintaining social anxiety are interdependent and exhibit both bi-directional and combinational effects (Hirsch, Clark, & Mathews, 2006). Despite this implication, most of the research to date has focused on the various processes in isolation. Two such processes, self-focused attention and post-event processing, are no exception.

### Self-focused attention

Self-focused attention (SFA) has been defined as the process of directing attention towards internal stimuli, such as physiological arousal, behaviour, emotions, or appearance, during a social event (Clark & Wells, 1995). According to cognitive-behavioural models, social anxiety is associated with heightened self-focussing during social situations (Clark & Wells, 1995; Rapee & Heimberg, 1997). This proposition has received ample support from studies showing that both individuals high in social anxiety and those who are clinically socially anxious consistently report more SFA in social

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situations compared to controls (for a review, see Hope, Gansler, & Heimberg, 1989; Spurr & Stopa, 2002; Woody, 1996; Woody & Rodriguez, 2000).

In addition to evidence from self-report, experimentally inducing SFA through instructions (Woody, 1996), the use of mirrors (Bögels, Rijsemus, & de Jong, 2002), video-cameras (Burgio, Merluzzi, & Pryor, 1986), and the presence of an audience (Woody & Rodriguez, 2000), have all corroborated the finding that self-focussing increases anxiety during social situations. In contrast, instructing clinically socially anxious individuals to attend externally during exposure therapy seems to reduce anxiety to a greater degree than exposure alone (Wells & Papageorgiou, 1998).

Other aspects of SFA predicted by cognitive-behavioural theories have also received empirical support. In accordance with these models, socially anxious individuals react faster to internal stimuli than external stimuli under social-evaluative conditions (Mansell, Clark, & Ehlers, 2003). Individuals with SAD also interpret the symptoms generated from self-focussing as more pathological compared to non-anxious controls (Roth, Antony, & Swinson, 2001). Self-focussing in socially anxious individuals also leads to memory biases for physiological cues indicative of poorer performance as compared to better memory for positive cues in those low in social anxiety (Ashbaugh & Radomsky, 2009). Moreover, focusing on the self has been found to prevent socially anxious individuals from noticing and processing external social cues, as evidenced by poorer memory for the details of conversation partners (Mellings & Alden, 2000) and social interactions in general (Daly, Vangelisti, & Lawrence, 1989; Hope, Heimberg, & Klein, 1990). Furthermore, as a result of the interpretative and memory biases arising from SFA, socially anxious individuals often underestimate their performance (Dannahy & Stopa, 2007).

Taken together, there is substantial evidence for the role of SFA in the maintenance of social anxiety. Overall, the research suggests that for socially anxious people, self-focussing has the effect of enhancing the processing of self-relevant information and increasing negative interpretive and memory biases. Cognitive-behavioural models, however, also imply that self-focussing *during* a social event is related to the post-event processing that takes place *following* the event, likely by enhancing memory for negative information (Clark & Wells, 1995). Despite this possibility, post-event processing has mainly been investigated independently from SFA.

### Post-event processing

Post-event processing (PEP) is an individual's repeated and detailed review of performance following a social event (Clark & Wells, 1995; Rapee & Heimberg, 1997). This review is often ruminative in nature, with a preoccupation on anxious feelings, negative self-perceptions, and negative aspects of performance (Clark & Wells, 1995). Like SFA, it has been suggested to play an important maintaining role in social anxiety.

Studies exploring PEP in SAD support cognitive-behavioural models (see review by Brozovich & Heimberg, 2008). Rachman, Gruter-Andrew, and Shafraan (2000) created the first measure of PEP, the Post-Event Processing Questionnaire, to assess the frequency of PEP for an anxiety-provoking social event that had occurred within the last few months. Socially anxious individuals reported more PEP, remembered more negative events more frequently, and rated the memories as more intrusive. Since then, several studies have consistently replicated these findings (Fehm, Schneider, & Hoyer, 2007; Kocovski & Rector, 2007, 2008; Lundh & Sperling, 2002; Mellings & Alden, 2000). Moreover, in addition to autobiographical accounts, PEP has also been measured following contrived social tasks in-lab. Greater PEP in both socially anxious undergraduate and clinical samples has been reported

following both impromptu speech tasks (Abbott & Rapee, 2004; Edwards, Rapee, & Franklin, 2003) and social interaction tasks (Dannahy & Stopa, 2007; Mellings & Alden, 2000).

Other aspects of PEP proposed by cognitive-behavioural theories have also been investigated. In support of these models, socially anxious individuals report more frequent, more intense, and longer PEP following anxiety-evoking social situations compared to anxiety-evoking non-social situations (Fehm et al., 2007) and following negative-evaluative events (i.e., social interaction and performance/speech situations) compared to events that cause guilt or anger (Lundh & Sperling, 2002). Moreover, it has been found that individuals high in social anxiety report more negative and upward counterfactual thoughts (how the situation could have been better; Kocovski, Endler, Rector, & Flett, 2005), and more thoughts concerned with poor presentation (e.g., poor posture; Kocovski, MacKenzie, & Rector, 2011) during PEP, all of which act to reinforce negative perceptions of performance. Engaging in PEP also maintains negative perceptions, as evidenced by studies showing that individuals with SAD who engage in more PEP maintain negative views of performance for up to three weeks later (Abbott & Rapee, 2004) and that socially anxious individuals with a higher trait tendency to engage in PEP evaluate their performance on a social interaction more negatively a week after its occurrence (Brozovich & Heimberg, 2011). Treatment outcome studies only further emphasize the role of PEP in SAD and provide promising evidence that PEP can be effectively reduced in clinical samples (Abbott & Rapee, 2004; Laposa & Rector, 2011; McEvoy, Mahoney, Perini, & Kingsep, 2009; Price & Anderson, 2011).

A large amount of evidence therefore supports the role of both SFA and PEP in maintaining social anxiety. As previously noted however, cognitive-behavioural models also imply that these two processes are directly related (Clark & Wells, 1995; Rapee & Heimberg, 1997). More specifically, it is assumed that PEP is dominated by individuals' anxious feelings and negative self-perceptions "because they were processed in detail while the patient was in the situation and hence were strongly encoded in memory" (Clark & Wells, 1995, p. 74). In order for processing and encoding of anxious feelings and negative self-perceptions to occur, an individual must attend to them during the social situation. It has already been shown that SFA leads to increased processing of negative self-related information (Mansell et al., 2003), which later figures prominently in the thoughts that characterize PEP (Kocovski et al., 2005). It is therefore possible that SFA directly affects PEP, such that increased self-focussing during a social event may increase PEP following the event.

Investigations of SFA and PEP together have been very limited. Some researchers have measured the two processes in the same study (e.g., Mellings & Alden, 2000), but failed to consider a possible connection between them. Others have manipulated the focus of attention during PEP (e.g., Brozovich & Heimberg, 2011), but not the focus of attention during a social situation. Only two studies have made more specific attempts at examining a possible relationship between SFA and PEP. Makkar and Grisham (2011a) initially investigated whether elevated SFA, among other variables, predicts greater PEP following anxiety-provoking social situations. They had participants engage in both a speech and conversation task. At the end of each, the participants reported on a number of variables, including their focus of attention. The following day, participants reported on the frequency of PEP that they engaged in over the 24-h interval. Although the authors found a moderate positive correlation between SFA and PEP on both tasks, no causal relationship could be established because SFA was not manipulated. In a second study, the same authors made a more direct investigation into the relationship between SFA and PEP by examining a possible causal effect of the content of self-images

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