Available online at www.sciencedirect.com

ScienceDirect

Behavior Therapy 48 (2017) 533–543

Behavior Therapy

www.elsevier.com/locate/bt

Social Anxiety and Biased Recall of Positive Information: It's Not the Content, It's the Valence

Brianne L. Glazier

Lynn E. Alden

University of British Columbia

Cognitive theorists hypothesize that individuals with social anxiety are prone to memory biases such that event recall becomes more negative over time. With few exceptions, studies have focused primarily on changes in negative self-judgments. The current study examined whether memory for positive social events is also subject to recall bias. Undergraduate participants (N = 138) engaged in an unexpected public speaking task and received standardized positive or neutral feedback on their performance. They rated their memory of the received feedback following a 5-minute delay and again 1 week later. Results revealed that higher scores on social anxiety symptoms predicted significant reductions in the recalled valence of positive feedback over time, whereas no changes were observed for neutral feedback. The results suggest that social anxiety may lead to erosion in memory of positive events.

Keywords: memory bias; social anxiety; social task

Cognitive theorists propose that individuals with social anxiety display memory biases such that recollections of social events become more negative over time (Clark & Wells, 1995; Rapee & Heimberg, 1997). With few exceptions, researchers have focused on memory for negative social information. Recent findings provide some suggestion that memory biases might extend to, or even be specific to, positive information (Cody & Teachman, 2010; Liang, Hsu, Hung, Wang, & Lin, 2011). However, the literature is inconsistent (e.g., Edwards, Rapee, & Franklin, 2003), and further research is required. Accordingly, the current study investigated how social anxiety affects recall of positive versus neutral social feedback.

Evidence of memory bias in individuals with social anxiety and social anxiety disorder (SAD) has been mixed (see Coles & Heimberg, 2002, for a detailed review). The majority of studies of verbal memory found no evidence of negatively biased memories in individuals with diagnosed SAD (e.g., Becker, Roth, Andrich, & Margraf, 1999; Cloitre, Cancienne, Heimberg, Holt, & Liebowitz, 1995; Lundh & Öst, 1997; Rapee, McCallum, Melville, Ravenscroft, & Rodney, 1994). There are two exceptions to this general pattern. Amir, Foa, and Coles (2000) found that participants with diagnosed SAD rated background noise as less loud when listening to social-threat sentences than neutral sentences, demonstrating an implicit memory bias for negative social information. Particularly relevant to the current study are findings indicating that socially anxious undergraduates who participated in a directed forgetting task more easily forgot socially positive words relative to nonanxious controls (Liang et al., 2011), pointing to a possible memory bias related to positive information.

Evidence for a negative bias in autobiographical memory retrieval is also mixed, with some studies providing support in a clinical sample (Wenzel, Jackson, & Holt, 2002) and in undergraduates with high social anxiety (Krans, de Bree, & Byrant, 2014),

This research was conducted as part of Brianne L. Glazier's master's thesis. This work was supported by a Social Sciences and Humanities Research Council of Canada (SSHRC) grant (435-2012-0350). The funding source had no involvement in the conduct of the research or preparation of the article.

Address correspondence to Brianne L. Glazier, Department of Psychology, University of British Columbia, 2136 West Mall, Vancouver, BC, Canada V6T 1Z4; e-mail: briglazier@psych.ubc.ca.

whereas others found no support in clinical samples (Rapee et al., 1994; Wenzel, Werner, Cochran, & Holt, 2004). Autobiographical studies are limited, however, by a lack of objective information against which to compare the retrieved memories.

Some researchers argue that memory biases may not arise in traditional memory paradigms (e.g., verbal studies) because the stimuli are not relevant to the concerns of socially anxious participants (e.g., Lundh, Thulin, Czyzykow, & Öst, 1998). Facial recognition studies addressed this concern by examining participants' memories for standardized pictures of negative faces. Results of these studies in clinical samples are also inconsistent, with some studies supporting a memory bias (Coles & Heimberg, 2005; Foa, Gilboa-Schechtman, Amir, & Freshman, 2000; Lundh & Öst, 1996b) and others not (Lemoult & Joormann, 2012; Lundh & Öst, 1996a). Additionally, Zengel, Skowronski, Valentiner, and Sedikides (2015) examined memory for descriptions of socially inept behavior and found that social anxiety in undergraduate and community samples was related to better recall of negative social behaviors when the behaviors were attributed to the participants themselves. This suggests that even with socially relevant stimuli, memory biases are more likely to arise if the information encoded is personally salient.

In a move toward increasing ecological validity, researchers examined self-ratings of social performance in actual social tasks immediately after the event and following a delay (Abbott & Rapee, 2004; Brozovich & Heimberg, 2011; Dannahy & Stopa, 2007). This research design offers the opportunity to assess memory *change* over time and thereby provides a more direct index of memory bias than immediate recall paradigms. Whereas immediate recall reflects encoding as well as retrieval processes, any change between immediate and delayed recall is more likely to capture how memories are altered as a function of postencoding processes such as memory decay or repeated memory retrieval and reconsolidation (i.e., postevent processing [PEP]). Although all three studies found that both socially anxious undergraduates and clinical SAD participants rated their performances more negatively than nonanxious controls, both immediately following a social task and after a delay, results pertaining to memory *change* were inconsistent. Abbott and Rapee (2004) found that the self-ratings of control participants became more positive over the week following a public speaking task, whereas those of individuals with SAD remained unchanged. Dannahy and Stopa (2007) found that the self-ratings of undergraduate participants with social anxiety became more negative in the week following an open-ended discussion task, whereas control participants displayed no significant change. In contrast, Brozovich and Heimberg (2011) found no main effect of undergraduates' social anxiety on change in self-ratings in an open-ended discussion task, although there was an interaction between social anxiety and trait PEP.

A somewhat different approach has been to provide participants with standardized feedback following social tasks and assess memory for the feedback shortly following the task and after a delay. As above, this approach allows time for postevent alterations in memory and thus, for memory biases to emerge. Edwards et al. (2003) delivered feedback via a mixture of negative and positive comments and assessed free recall after a filler task and 1 week later in a sample of undergraduates. Although the socially anxious participants recalled more negative comments than controls at both time periods, there was no change over time in recall of either positive or negative comments. Cody and Teachman (2010) provided undergraduate participants with ratings on 5-point scales allegedly reflecting positive and negative aspects of their performance. Participants were asked to recall the valence (i.e., positivity/negativity) of the ratings 5 minutes after the speech and 2 days later. Consistent with Edwards et al. (2003), the socially anxious participants displayed no change in the recalled valence of negative feedback. Interestingly, however, the socially anxious participants displayed a modest but significant reduction in their ratings of the valence (positivity) of the positive feedback 2 days later, although the change was not sufficient to significantly distinguish them from low anxious controls at Time 2. This intriguing finding, along with that of Liang et al. (2011), points to the possibility that given more time for memory decay, social anxiety may be associated with a memory bias for positive information. Furthermore, the results of Cody and Teachman (2010) showing reduced positivity in recalled feedback suggest that this bias may emerge in the recalled *valence* of feedback, not the *content* itself (i.e., the words provided) as studied by Edwards et al. (2003).

The possibility of recall bias for positive social information would be in keeping with research on deficiencies in positive affect in socially anxious individuals. Individuals with SAD have been shown to experience less positive affect, to rate their experiences less positively relative to controls (Brown, Chorpita, & Barlow, 1998; Kashdan & Steger, 2006), and to report a reduced capacity to savor positive experiences (Eisner, Johnson, & Carver, 2009). In addition, they have been shown