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## Negative autobiographical memories in social anxiety disorder: A comparison with panic disorder and healthy controls<sup>★</sup>



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#### ABSTRACT

Background and objectives: Empirical interest in mental imagery in social anxiety disorder (SAD) has grown over the past years but still little is known about the specificity to SAD. The present study therefore examines negative autobiographical memories in participants with social anxiety disorder (SAD), compared to patients with panic disorder (PD), and healthy controls (HCs).

Methods: A total of 107 participants retrieved four memories cued by verbal phrases associated with either social anxiety (SA) or panic anxiety (PA), with two memories for each cue category.

Results: PA-cued memories were experienced with stronger imagery and as more traumatic. They were also rated as more central to identity than SA-cued memories, but not among participants with SAD, who perceived SA-cued memories as equally central to their identity. When between-group effects were detected, participants with anxiety disorders differed from HCs, but not from each other.

*Limitations*: Central limitations include reliance on self-report measures, comorbidity in the anxiety disorder groups, and lack of a neutrally cued memory comparison.

*Conclusions:* The findings align with models of SAD suggesting that past negative social events play a central role in this disorder. Future research is suggested to further explore the function of negative memories, not only in SAD, but also in other anxiety disorders.

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#### 1. Introduction

Empirical interest in mental imagery in social anxiety disorder (SAD) has grown over the past years, and studies have shown that individuals high in self-reported social anxiety experience negative imagery more so than individuals low in self-reported social anxiety (Hackmann, Suraway, & Clark, 1998). In addition, studies have indicated that negative self-imagery has a causal role in maintaining SAD by increasing state anxiety, enhancing negative self-judgments, and having a detrimental effect on performance (Hirsch, Clark, Mathews, & Williams, 2003; Hirsch & Holmes, 2007). Correspondingly, recent intervention approaches have been targeting past negative social events and related imagery with promising results (Frets, Kevenaar, & Heiden, 2014; Wild, Hackmann, & Clark, 2007).

#### 1.1. Autobiographical memories and related imagery in SAD

Individuals high in self-reported social anxiety and individuals with SAD differ from individuals low in self-reported social anxiety and healthy controls (HCs) on a number of phenomenological characteristics of their memory imagery (for a review, see Morgan, 2010). Socially anxious individuals may experience mental images related to autobiographical memories as more negative (Hinrichsen & Clark, 2003), vivid, detailed in quality (Wild et al., 2007), and to a larger extent view them from an observer's perspective (Coles, Turk, Heimberg, & Fresco, 2001; D'Argembeau, Van der Linden, d'Acremont, & Mayers, 2006; Hinrichsen & Clark, 2003; Wells & Papageorgiou, 1999; Wells, Clark, & Ahmad, 1998).

Imagery in SAD may be linked in time with negative, self-defining autobiographical memories (Hackmann, Clark, & McManus, 2000; Morgan, 2010; Moscovitch, Gavric, Merrifield, Bielak, & Moscovitch, 2011), a notion that was first introduced by Singer and Salovey (1993). In general, autobiographical memories differ in the degree to which they are perceived as central to the person's identity or life story (Berntsen & Rubin, 2006, 2007). To

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perceive some, but not all, memories as central has been argued to help give meaning and structure to our life narratives, providing anchors for and stabilizing conceptions of ourselves (e.g., Baerger & McAdams, 1999; Pillemer, 1998, 2003; Robinson, 1992; Robinson & Taylor, 1998; Shum, 1998). However, these anchors may become fixed reference points and bring about rigidity in negative self-assumptions in case a highly negative event takes this role (Berntsen & Rubin, 2006; Berntsen, Willert, & Rubin, 2003). For instance, an individual with SAD who has experienced humiliation when speaking in front of others may avoid public speaking in order to prevent similar, future failures.

Autobiographical memories can be retrieved either voluntarily, that is by a deliberate effort to recall an episodic event, or involuntarily, referring to spontaneously occurring retrieval that takes place with no preceding retrieval attemtpts, typically when situational cues map onto episodic events from the past (Berntsen, 1996, 2009). Individuals with SAD may ruminate about past social events (Clark & McManus, 2002), thereby engaging in voluntary retrieval of anxious memories. Regarding involuntary retrieval, individuals with SAD have been found to experience spontaneously occurring retrieval of past events in anxiety provoking situations (Hackmann et al., 1998, 2000). Such spontaneously occurring recall of negative events may be experienced as having an intrusive character, a notion that is supported by a study showing that socially anxious individuals experience having poor control over their images (Moscivitch, Chiupka, & Gavric, 2013). In fact, individuals with SAD have been shown to react to socially stressful memories with PTSDsymptoms (Erwin, Heimberg, Marx, & Franklin, 2006).

Finally, retrieved events differ in specificity, that is, the degree to which the memories concern a specific episodic event. Non-specific, overgeneral memories are a common phenomenon in major depressive disorder (e.g., Watson, Berntsen, Kuyken, & Watkins, 2012; Williams et al., 2007) and prevalent in PTSD (e.g., McNally, Lasko, Macklin, and Pitman, 1995; Moore & Zoellner, 2007), but likely not so in other anxiety disorders (Wessel, Meeren, Peeters, Arntz, & Merckelbach, 2001) including SAD (Heidenreich, Junghanns-Royack, & Stangier, 2007).

#### 1.2. Disorder and content specificity in SAD

Most research to date on autobiographical memories and imagery in SAD has not included an anxiety control group, which calls the specificity of the findings into question. First, specificity may concern *disorder* specificity, understood as the extent to which there are SAD-specific characteristics that apply across types of retrieved memories. Second, the cognitive specificity hypothesis (Beck, 1987; Clark & Beck, 2010) concerns disorder specific biases and addresses what may be termed *content* specificity. This concerns the question of whether imagery in SAD is different for events characterized by *social anxiety* compared with content non-specific to social anxiety.

These two types of specificity have been sparsely studied comparing SAD and other anxiety disorders. Wells & Papageorgiou, 1999 found that only individuals with SAD, not individuals with blood/injury phobia, agoraphobia, or HCs, shifted their recall perspective depending on the content of the recalled situation. They recalled social situations from an observer perspective and neutral situations from a field perspective. Harvey, Ehlers, and Clark (2005) found that in the recall of social situations, individuals with SAD and PTSD did not differ from each other, but differed from HCs, in their rating of the extent to which they looked embarrassed in the event. However, individuals with SAD claimed that the events had a higher impact on their future than individuals with PTSD. Wenzel and Cochran (2006) investigated retrieval of autobiographical memories prompted by automatic thoughts prototypical

of SAD or panic disorder (PD) or neutral sentences in individuals with SAD, PD and HCs. Only one difference emerged between the anxiety groups, where individuals with PD were faster at generating memories when prompted by PD-related thoughts than both individuals with SAD and HCs. This pattern was not found for SAD and SAD-related thoughts. Finally, a study by Witheridge, Cabral, and Rector (2010) investigated cued autobiographical memory content in individuals with SAD, PD, and major depressive disorder. The SAD group did not report more social evaluation memory content than the depressed or PD group and no overall betweengroup differences in cognitive vulnerability characteristics were observed. Taken together, the studies have revealed mixed findings, and our knowledge about which characteristics of autobiographical memory recall are specific to the type of memory and/or to SAD is generally an under-investigated area. This is unfortunate as it would seem crucial to understand which characteristics of the imagery are disorder and/or content specific in order to appropriately and effectively target current and new treatments.

#### 1.3. Aims and hypotheses

The present study is an examination of autobiographical memories of negative events and related imagery in SAD, PD and HCs, investigating two types of autobiographical memories across groups; one cued by social anxiety (SA)-related words and one by panic anxiety (PA)-related words. Individuals with PD were chosen as a comparison group for three reasons: 1) The two diagnoses are comparable in that they are associated with anxiety in a variety of situations. However, 2) the focal points of anxiety differ between the disorders in that individuals with SAD mainly fear the negative evaluation of others and individuals with PD mainly fear the occurrence of internal anxious sensations. Finally, 3) individuals with SAD have most often been compared with individuals with PD.

Regarding content specificity, we expected SAD participants' memories cued by SA-related phrases to be experienced as more negative and vivid, and viewed from an observer's perspective, when compared with their memories cued by PA-related phrases. Concerning disorder specificity, we hypothesized that, compared with HCs, participants with SAD would report more voluntary and involuntary recall of anxious events, and perceive the events as having a greater traumatic impact and playing a more central role in relation to their identity. Given the sparse research comparing SAD to other anxiety disorders, we did not formulate any a priori hypotheses regarding differences between the anxiety disorders, and analyses concerning this issue are exploratory.

#### 2. Methods

#### 2.1. Participants and procedures

Participants with SAD and PD were recruited from an outpatient anxiety clinic at Aarhus University Hospital, Denmark. Anxiety disorders were diagnosed according to DSM-IV criteria with the Anxiety Disorders Interview Scale for DSM-IV (ADIS-IV; Brown, DiNardo, & Barlow, 1994). All diagnostic interviews were conducted by a team of clinicians, who met on a weekly basis to peer supervise diagnoses. Inclusion criteria were a primary diagnosis of SAD or PD, age  $\geq 18$  years, and Danish language proficiency. Exclusion criteria were a severe mental illness, including bipolar disorders, psychotic disorders, and severe depression.

All patients fulfilling the inclusion criteria (SAD: N=103, PD: N=27) were e-mailed a link to an online survey prior to the beginning of treatment. Seventy-eight (60%) individuals responded; 58 with SAD and 20 with PD. There was no difference between responders and non-responders on age, t(128)=1.6, p=.114, or

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