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On the context dependency of implicit self-esteem in social anxiety disorder



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ABSTRACT

Background and objectives: Cognitive models assume that negative self-evaluations are automatically activated in individuals with Social Anxiety Disorder (SAD) during social situations, increasing their individual level of anxiety. This study examined automatic self-evaluations (i.e., implicit self-esteem) and state anxiety in a group of individuals with SAD ($n = 45$) and a non-clinical comparison group (NC; $n = 46$).

Methods: Participants were randomly assigned to either a speech condition with social threat induction (giving an impromptu speech) or to a no-speech condition without social threat induction. We measured implicit self-esteem with an Implicit Association Test (IAT).

Results: Implicit self-esteem differed significantly between SAD and NC groups under the speech condition but not under the no-speech condition. The SAD group showed lower implicit self-esteem than the NC group under the speech-condition. State anxiety was significantly higher under the speech condition than under the no-speech condition in the SAD group but not in the NC group. Mediation analyses supported the idea that for the SAD group, the effect of experimental condition on state anxiety was mediated by implicit self-esteem.

Limitations: The causal relation between implicit self-esteem and state anxiety could not be determined. **Conclusion:** The findings corroborate hypotheses derived from cognitive models of SAD: Automatic self-evaluations were negatively biased in individuals with SAD facing social threat and showed an inverse relationship to levels of state anxiety. However, automatic self-evaluations in individuals with SAD can be unbiased (similar to NC) in situations without social threat.

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1. Introduction

Cognitive models of Social Anxiety Disorder (SAD) propose that negative self-evaluations can be automatically activated in individuals with SAD following participation in or anticipation of social situations (Clark & Wells, 1995; Heimberg, Brozovich, & Rapee, 2010; Hofmann, 2007). The activation of negative self-evaluations is accompanied by dysfunctional cognitive processes (Clark & Wells, 1995; Heimberg et al., 2010; Hofmann, 2007) and leads to the exacerbation of anxiety symptoms. However, it has also been proposed that automatic self-evaluations of individuals with

SAD can be positive in situations they do not perceive as threatening (Baldwin & Fergusson, 2001; Clark & Wells, 1995). The current study examined automatic self-evaluations and state anxiety in individuals with SAD and in a non-clinical comparison group across two situations differing in social threat.

Negative self-evaluations (e.g., “I am inferior”) and fear of negative evaluation by others (e.g., being embarrassed in social situations) are core features of SAD (American Psychiatric Association, 2013). According to Clark and Wells (1995) negative self-evaluations are stored in memory as conditional or unconditional beliefs about the self. These are automatically activated during social situations, lead to misinterpretations of the situation, and to intense anxiety. Heimberg et al. (2010) assumed that in social situations, individuals with SAD automatically activate negatively biased mental self-representations triggered by negative beliefs and early traumatic memories (see Wild & Clark, 2011).

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Biased cognitive processing in anxiety disorders is assumed to be frequently automatic and occurring in an unintentional and uncontrollable manner (Beck & Clark, 1997; Beck, Emery, & Greenberg, 1985; McNally, 1995; Teachman, Joormann, Steinman, & Gotlib, 2012). Given that implicit measures of self-evaluations capture automatic affective components of the self (Buhrmester, Blanton, & Swann, 2011), they allow to study dysfunctional cognitive processes in individuals with anxiety disorders (Roefs et al., 2011; Teachman et al., 2012). Self-esteem Implicit Association Tests (self-esteem IATs; Greenwald & Farnham, 2000) are widely used instruments for measuring automatic self-evaluations.

While it has repeatedly been shown that experimental manipulations (e.g., anxiety inductions) can lead to predictable changes in implicit self-associations (Grumm, Nestler, & von Collani, 2009; Westberg, Lundh, & Jönsson, 2007), findings on implicit self-esteem in SAD are mixed. In particular, it has not yet been clearly demonstrated that the activation of automatic negative self-evaluations in SAD depends on situational contexts and actually leads to state anxiety. Several studies examining implicit self-esteem after social-threat inductions found relatively low implicit self-esteem in individuals with SAD as compared to healthy individuals (Ritter, Ertel, Beil, Steffens, & Stangier, 2013; Tanner, Stopa, & De Houwer, 2006), whereas one study found no group differences (Schreiber, Bohn, Aderka, Stangier, & Steil, 2012). For example, Ritter, Ertel, et al. (2013) observed lower implicit self-esteem in patients with SAD than in healthy individuals following a social-threat induction (giving an impromptu speech). Similarly, Tanner et al. (2006) compared high and low socially anxious individuals following a social-threat induction and found lower implicit self-esteem in the high socially anxious group. Given that both studies did not include a no-threat condition, it remains unclear whether implicit self-esteem in socially anxious participants decreased in response to the anxiety-provoking situation or was generally low. By contrast, Schreiber et al. (2012) found no differences in implicit self-esteem between adolescents with and without SAD, neither before nor after a social-threat induction.

Several studies without threat inductions provided evidence for low implicit self-esteem in socially anxious individuals. For example, Glashouwer, Vroling, de Jong, Lange, and de Keijser (2013) observed low implicit self-esteem in adults with SAD as compared to a non-clinical comparison group (NC). De Jong, Sportel, de Hullu, and Nauta (2012) demonstrated an association between low implicit self-esteem and anxiety symptoms in high socially anxious girls, and de Jong (2002) found relatively low implicit self-esteem in high as compared to low socially anxious female undergraduates. By contrast, Hulme, Hirsch, and Stopa (2012) found no differences in implicit self-esteem between high and low socially anxious undergraduate students.

In sum, so far it has not been determined whether implicit self-esteem in individuals with SAD varies as a function of situational cues. Previous studies either lacked social-threat inductions or “no-threat”-control conditions. An experimental design that includes both a non-clinical comparison group and conditions with varying levels of social threat would enhance knowledge regarding the malleability of automatic self-evaluations in individuals with SAD.

We designed a randomized controlled experiment in which a group of individuals with SAD and a NC group were assigned to either a “speech-condition” or to a “no-speech condition”. Under the speech condition, participants were told that they would have to give an impromptu speech in front of an audience (social-threat activation task). Under the no-speech condition, participants were instructed to think about the same topics but assured that no speech would have to be given. Depression was used as a covariate in supplementary analyses, but did not influence any of the reported findings (see Appendix). We originally also included a so-

called Go-/No-go Association Task to separately measure implicit “other-associations” but did not obtain clear findings regarding this (see Appendix).

Three hypotheses were derived from cognitive models of SAD (Clark & Wells, 1995; Heimberg et al., 2010; Hofmann, 2007). First, implicit self-esteem should be lower under the speech condition than under the no-speech condition in SAD, but not in NC. Second, the level of state anxiety following social threat should be greater in SAD than in NC. Third, if the activation of negative self-evaluations leads to the exacerbation of anxiety symptoms (Clark & Wells, 1995; Heimberg et al., 2010; Hofmann, 2007), the increase in state anxiety following social threat should be mediated by lowered implicit self-esteem in the SAD group.

2. Methods

2.1. Participants

Individuals with a primary diagnosis of social anxiety disorder (SAD group; $n = 45$; 30 women) were recruited from various psychotherapeutic outpatient clinics in a mid-sized town in central Germany. All diagnoses were confirmed by a licensed clinical psychologist (the first author) using the SCID-I-Interview (see below). SPIN total scores (see below) ranged from 25 to 58 in the SAD group, indicating reliability of SAD diagnoses. Sixteen individuals with SAD (36%) showed the following comorbid disorders: major depressive disorder, first episode ($n = 4$), major depressive disorder, recurrent episode ($n = 4$), panic disorder ($n = 3$), specific phobia ($n = 3$), attention-deficit/hyperactivity disorder ($n = 2$), and obsessive-compulsive disorder ($n = 1$). Individuals with neurocognitive, psychomotoric, substance-related, or psychotic disorders were excluded. None of the participants used psychotropic medication.

The non-clinical comparison group (NC; $n = 46$; 26 women) was recruited via public announcements. None of them had a history of current or past mental disorders as confirmed by the SCID-I-Interview (see Table 1 for descriptives).

Based on previous empirical findings on implicit self-esteem in patients with SAD (Ritter, Ertel, et al., 2013; Tanner et al., 2006), we aimed at detecting medium-size effects. An a priori power analysis showed that main and interaction effects of moderate size ($f = 0.30$) could be detected with $\alpha = 0.05$ and a statistical power of 0.80 in the 2×2 ANOVAs computed below (see Cohen, 1988).

2.2. Materials

Structured Clinical Interview for DSM-IV (SCID-I). The SCID-I (First, Spitzer, Gibbon, & Williams, 1996; German version: Wittchen, Zaudig, & Fydrich, 1997) is a structured clinical interview for assessing axis-I disorders according to DSM-IV (American Psychiatric Association, 1994).

Social Phobia Inventory (SPIN). The SPIN (Connor et al., 2000; German version: Stangier & Steffens, 2002) was used to assess the severity of SAD during the past week. It consists of 17 statements referring to behavioral, emotional, and physiological symptoms associated with SAD. Total scores range from 0 to 68, with higher values indicating more severe symptoms. In the German validation study, a cut-off score of 25 points optimally discriminated individuals with SAD from healthy controls (Sosis, Gieler, & Stangier, 2008). Internal consistency was excellent in our sample (Cronbach's $\alpha = .97$).

Beck Depression Inventory (BDI). The BDI (Beck, Rush, Shaw, & Emery, 1979; German version: Hautzinger, Bailer, Worall, & Keller, 1991) was used to measure depression severity during the past two weeks. It consists of 21 items. Total scores range from 0 to 63,

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