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Self-evaluations in social anxiety: The combined role of explicit and implicit social-rank

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ABSTRACT

Evolutionary models highlight the centrality of the social-rank system in social anxiety (SA). Cognitive models emphasize the role of low self-evaluations (SEs) in the etiology and maintenance of SA. Based on these models, we predicted that explicit and implicit social-rank SEs are negatively associated with SA-severity. Consistent with previous findings, we also expected the negative association between SA-severity and implicit social-rank SEs to be intensified by low levels of explicit social-rank SEs. Participants (N = 216) performed social-rank and affiliation versions of the Self Implicit Association Test (Greenwald & Farnham, 2000) to assess implicit SEs. Next, they rated themselves on traits concerning social-rank and affiliation to assess explicit SEs. We found that SA-severity is associated with explicit social-rank SEs, above and beyond the effects of self-esteem, depression-severity, and affiliation SEs. Moreover, SA-severity was further associated with the inter-relationship between explicit and implicit social-rank SEs: At low levels of explicit SEs, implicit SEs are negatively related to SA-severity, whereas this association did not hold at high levels of explicit SEs. These findings extend and refine cognitive theories in highlighting the importance of social-rank SEs in SA. The role of understanding the multifaceted structure of the self in conceptualizing SA is underlined.

1. Introduction

Social anxiety (SA) disorder is a serious affliction affecting 12% of the adult US population (Kessler et al., 2005). It involves a persistent anxiety of social situations in which there is a potential of scrutiny by others. SA interferes with daily life including professional success and relationships (Alden & Taylor, 2004). Even in its subclinical manifestations, SA is associated with considerable intra- and inter-personal costs (Fehm, Beesdo, Jacobi, & Fiedler, 2008).

Evolutionary models (Gilboa-Schechtman, Shachar, & Helpman, 2014; Weeks, Heimberg, & Heuer, 2011) suggest that SA is characterized by dysregulation of the social-rank biobehavioral system. This system, which emerges early in development and operates automatically, is geared to monitor one's social-standing and to coordinate responses to changes in social-rank. The over-utilization of the social-rank system by high SA individuals is manifested in enhanced sensitivity to, and biased interpretation of, social-rank cues, as well as a tendency to react to social-rank changes submissively (Aderka, Haker, Marom, Hermesh, & Gilboa-Schechtman, 2013; Gilboa-Schechtman, Galili, Sahar, & Amir, 2014; Haker, Aderka, Marom, Hermesh, & Gilboa-Schechtman, 2014; Weeks et al., 2011). These tendencies, combined, are postulated to result in low self-evaluations (SEs) in the domain of social-rank.

Negative SEs have been the cornerstone in cognitive models of SA (Clark & Wells, 1995; Rapee & Heimberg, 1997). According to Clark and Wells's (1995) cognitive model, dysfunctional beliefs about the self are activated by actual or anticipated social interactions. A consistent body of literature supports the association between SA-severity and negative self-reported (i.e. explicit) SEs (e.g., Moscovitch, Orr, Rowa, Reimer, & Antony, 2009; Stopa, Brown, Luke, & Hirsch, 2010). However, given that SA is associated with heightened concerns of self-presentation, explicit SEs may present a negatively biased depiction of high-SA individuals privately held self-views.

SEs can be evaluated both explicitly and implicitly. Explicit SEs are related to consciously held attitudes and to reasoned, controlled or deliberate behaviors (Asendorpf, Banse, & Mücke, 2002; Greenwald & Banaji, 1995). Implicit SEs rely on non-deliberate, affective, and intuitive associations of the self (Greenwald & Farnham, 2000) and appear to be more strongly related to non-deliberate behaviors such as nonverbal expressions of anxiety or dominance (Huntjens, Rijkeboer, Krakau, & de Jong, 2014; Spalding & Hardin, 1999). Explicit and implicit SEs are conceptualized as distinct constructs (Dijksterhuis & Nordgren, 2006), each with an independent influence on emotion, cognition and behavior (Schnabel & Asendorpf, 2010; Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). For example, implicit measures of shyness were found to predict spontaneous shy behavior whereas explicit shyness

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ratings predicted controlled shy behavior (Asendorpf et al., 2002). To gain a fuller understanding of the role of social-rank SEs in SA, both explicit and implicit SEs need to be assessed.

Integrating the evolutionary and cognitive accounts, high-SA individuals are postulated to endorse lower social-rank SEs. Indeed, as compared to low-SA individuals, high-SA individuals were found to perceive themselves as having low social-rank, as being socially inferior and as behaving submissively (Gilbert, 2000; Weisman, Aderka, Marom, Hermesh, & Gilboa-Schechtman, 2011). In addition, SA-severity was found to be negatively related to explicit social-rank SEs, above and beyond those of affiliation and attachment (Aderka, Weisman, Shahar, & Gilboa-Schechtman, 2009), indicating that the link between SA and negative explicit SEs is specific to social-rank concerns.

Findings regarding implicit SEs in SA are inconsistent: whereas some studies found that high-SA individuals exhibit lower implicit SEs than do low-SA individuals (Tanner, Stopa, & De Houwer, 2006; Glashouwer, Vroling, de Jong, Lange, & de Keijser, 2013; Ritter, Ertel, Beil, Steffens, & Stangier, 2013), others have found that high- and low-SA individuals were characterized by similar (and positive) levels of implicit global SEs (de Jong, 2002; Schreiber, Bohn, Aderka, Stangier, & Steil, 2012; van Tuijl, de Jong, Sportel, de Hullu, & Nauta, 2014). By assessing implicit domain-specific SEs several studies have documented negative associations between SA-severity and implicit social-rank SEs. Gilboa-Schechtman, Friedman, Helpman, and Kananov (2013) found that, among sub-clinical individuals, SA-severity is negatively associated with explicit and implicit social-rank SEs, above and beyond its association with self-esteem, depression-severity, and affiliation SEs. Furthermore, using a clinical sample, Gilboa-Schechtman et al. (2016) found that individuals with SA-disorder exhibit lower explicit and implicit social-rank SEs in comparison to non-clinical controls. Combined, these findings suggest that SA-severity is related to reduced implicit social-rank (but not affiliation) SEs.

In addition to the distinct roles of explicit and implicit SEs, it is argued that the inter-relationship (e.g., congruence or discrepancy) between these evaluations is associated with intra- and inter-personal outcomes. On the one hand, studies have shown that discrepancies between explicit and implicit SEs are associated with defensiveness, impulsive behavior, and reduced well-being (Bosson, Brown, Zeigler-Hill, & Swann, 2003; Jordan, Spencer, Zanna, Hoshino-Browne, & Correll, 2003; Goldstein et al., 2014). On the other hand, other findings suggest that congruence between global negative explicit and implicit SEs is associated with distress (Perugini, 2005; Pirutinsky, Siev, & Rosmarin, 2015). Specifically, in SA, de Jong, Sportel, De Hullu, and Nauta (2012) found that among girls, low global implicit SEs combined with low explicit SEs was related to greater SA-severity (indicating a partial congruency pattern). The main goal of the present study is to examine the inter-relationship between explicit and implicit social-rank SEs in SA.

1.1. The present study

This study aims to replicate our previous findings regarding social-rank SEs in SA, and to explore the inter-relationship between explicit and implicit social-rank SEs. Our previous studies did not explore this relationship due to low statistical power. Therefore, in the current investigation we recruited a larger sample, allowing the examination of such an interaction effect. The estimated minimal sample size was 191, based on the ability to detect an interaction effect-size of 0.08 (as in de Jong et al., 2012), with 0.05 significance and 0.80 power levels (using Soper, 2016).

Two hypotheses were tested. First, we postulated that SA-severity is associated with explicit and implicit social-rank SEs, over and above the effects of self-esteem, depression-severity, and affiliation SEs. Second, SA-severity was expected to be further associated with the explicit-implicit interaction in the domain of social-rank. Specifically, consistent with the partial congruency found by de Jong et al. (2012), we expected the negative association between SA-severity and implicit social-rank SEs to be intensified by low levels of explicit social-rank SEs.

2. Method

2.1. Participants

Participants (N = 222, 121 women) were undergraduate students who completed this study as partial fulfillment of course requirements and were compensated with course credit. Participants with an error rate exceeding 20% on either affiliation or social-rank IATs were excluded ($n = 6$; see Greenwald & Farnham, 2000), resulting in a final sample of 216 participants (121 women). Our sample was young (age: M = 24.11, $SD = 3.48$), educated (M = 14.01, $SD = 1.76$) and mostly single (81%).

2.2. Procedure

All participants provided informed consent prior to completing the study. Participants first completed the social-rank and affiliation IATs (assessing implicit SEs), which were presented in a counterbalanced order. Next, participants rated themselves on social-rank and affiliation traits (assessing explicit SEs). Finally, they answered self-esteem, SA and depression questionnaires.

2.3. Materials

Identical social-rank and affiliation stimuli (trait adjectives) were used for both explicit and implicit SE measures. Social-rank stimuli consisted of 6 high (e.g., *assertive*, *strong*) and 6 low (e.g., *weak*, *hesitant*) traits. Affiliation stimuli consisted of 6 high (e.g., *kind*, *caring*) and 6 low (e.g., *cold*, *distant*) traits.

The stimuli were validated in two phases. First, 23 raters – graduate students in clinical psychology – confirmed that the social-rank traits loaded higher on the social-rank dimension than did the affiliation traits, and vice versa. Second, 140 participants rated themselves on these traits. A principal axis factoring indicated that the items loaded on two separate factors of social-rank and affiliation. Both factors showed good convergent and divergent validity. For a full account see Gilboa-Schechtman et al. (2016).

2.4. Measures

2.4.1. Implicit self-evaluations

Two versions of the IAT were created in order to assess implicit social-rank and affiliation SEs. Both IATs used *self* and *other* targets and stimuli (e.g., self: *Me*, *Mine*; other: *Him*, *Her*). The social-rank IAT attributes were *dominant* (high) and *submissive* (low). The affiliation IAT attributes were *friendly* (high) and *hostile* (low). Both IATs consisted of seven blocks, as indicated by Greenwald, Nosek, and Banaji (2003; see Fig. 1). Participants were instructed to rapidly categorize each trait according to the relevant labels. Stimuli in each block were presented randomly with an inter-trial interval of 500 ms. If an incorrect response was made, a red X appeared for 500 ms before the next trials began.

IAT scores were computed in exact accordance with the improved IAT scoring algorithm (Greenwald et al., 2003), based on the reaction times of blocks 3, 4, 6 and 7. First, responses slower than 10,000 ms and faster than 350 ms were excluded and incorrect responses were replaced with the block mean plus a 600 ms error penalty. The resulting values of each block were then averaged and two difference scores were computed: between the means of Blocks 3 and 6, and between the means of Blocks 4 and 7. Differences were computed such that the mean of the congruent (self + high social-rank/affiliation) block was subtracted from the mean of the incongruent (self + low social-rank/affiliation) block. Each difference score was divided by the standard deviation of all correct responses within the associated blocks. Finally, the