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# Social anxiety is related to dominance but not to affiliation as perceived by self and others: A real-life investigation into the psychobiological perspective on social anxiety



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## ABSTRACT

From a biopsychological perspective, social anxiety can be seen as a proneness to act submissively in order to reduce conflict and avoid rejection by others. Research into this framework so far specifically focused on the *self-perceived* social world. Less is known about the relation between social anxiety and one's *actual* position within a group, as perceived by group members. In addition, research to date showed that social anxiety seems related to social rejection after short interactions, but it is not known if social anxiety affects affiliation ratings after more prolonged interactions. Therefore, the current study tested if social anxiety is related to lower dominance and affiliation ratings by self and others in groups that exist for longer periods of time. Seventy-six participants from eight groups rated themselves and their group members on the dimensions of dominance and affiliation. The results showed that social anxiety was negatively related to dominance but not to affiliation. These results indicate that it is necessary to investigate social evaluations of individuals with social anxiety in more naturalistic and less structured settings. Also, the results hint that it might be worthwhile to investigate if specific safety behaviors are related to lower dominance ratings by others.

## 1. Introduction

From a biopsychological perspective, social anxiety can be seen as a mode for dealing with social threat (for extensive reviews see Gilbert, 2000, 2001; Gilboa-Schechtman, Shachar, & Helpman, 2014; Trower & Gilbert, 1989; Weeks, Heimberg, & Heuer, 2011; Öhman, 1986). Particularly, humans have a fundamental need to belong and form attachments (Baumeister & Leary, 1995). Social life is full of perils however, and this need to belong can be threatened easily. For instance, when people bully, reject or exclude each other (Gilbert, 2001). To avoid this, in the course of human evolution, people developed a motivational affective schema that prevents jeopardizing the relationships with others (e.g., Gilbert, 2001; Leary & Jongman-Sereno, 2014). This more automatic system allows individuals to monitor to what extent they are being accepted or rejected. In individuals with social anxiety disorder however, this functional mechanism allegedly has derailed and become maladaptive (Gilbert, 2001). For instance, there is evidence that socially anxious individuals are extremely attuned to signals of social threat (e.g., Gilboa-Schechtman, Foa, & Amir, 1999; Joormann & Gotlib, 2006). The motivational affective schema that socially anxious individuals overuse consists of beliefs about hierarchy and conflict.

That is, according to Trower and Gilbert (1989), socially anxious individuals overuse an 'agonic mode' in which the social world is perceived as hierarchical and conflictual, and underuse a 'hedonic' mode which includes affective schema's of communion, safety, agreeableness and warmth (e.g., Aderka, Weisman, Shahar, & Gilboa-Schechtman, 2009; Alden, Wiggins, & Pincus, 1990; Gilboa-Schechtman et al., 2014; Hope, Sigler, Penn, & Meier, 1998; Leary, 1957; Wiggins, 1979).

Within the agonic mode, humans tend to compete for status and approval. Effectively striving for a high status within a group requires that an individual believes that he or she has added value for that group and that others will recognize that value (Anderson & Kilduff, 2009a; Anderson & Kilduff, 2009b). Thus, to obtain a dominant position it is at least as important to signal competence as to actually be competent (Anderson & Kilduff, 2009b). Individuals with social anxiety disorder however, tend to perceive themselves as not being competent enough and are not inclined to signal any competences that they may nevertheless feel they have (e.g., Alden & Wallace, 1991; Creed & Funder, 1998; Hofmann, 2007; Hope et al., 1998). Thus, socially anxious individuals tend to view themselves as subordinate to others (Berger, Keshet, & Gilboa-Schechtman, 2017; Gilbert, 2000, 2001; Russell et al., 2011; Weeks et al., 2011). For socially anxious individuals, the

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alternative is therefore to signal signs of appeasement and submissiveness to avoid conflict and rejection by others. Studies indeed showed that socially anxious individuals wish to avoid conflict and easily take blame for social mishaps (Davila & Beck, 2002; Trower, Sherling, Beech, Harrop, & Gilbert, 1998).

Importantly, research so far has specifically focused on the *self-perceived* social world and one's relation to that world, and has not clarified if socially anxious individuals *in reality* occupy more subordinate positions within a group. The latter situation carries important clinical implications however, and it is therefore important to consider this possibility (e.g., Trower et al., 1998). For example, it might be more useful to strengthen a socially anxious individual's self-presentation using skills training, than to treat his or her self-perceived subordinate position as a dysfunctional cognition in cognitive therapy.

There is reason to assume that signaling submissiveness will indeed lead to lower dominance within a social group. In line with the self-beliefs of socially anxious individuals, many of the (safety) behaviors that are characteristic for social anxiety can be seen as submissive behavior. For example, socially anxious individuals more often avert their gaze, collapse their posture or raise the pitch of their voice (Weeks et al., 2011; Weeks, Howell, & Goldin, 2013). This concurs with findings that socially anxious individuals are actually perceived as less dominant by their friends, but also by strangers after short experimental interaction tasks (Creed & Funder, 1998; Oakman, Gifford, & Chlebowski, 2003; Rodebaugh et al., 2014; Walters & Hope, 1998). However, anxious and non-anxious participants could not be distinguished in terms of dominance in other studies (Hope et al., 1998). Thus, these results suggest that social anxiety, perhaps through submissive behavior, might also be related to lower actual dominance within a group.

Only very few studies examined this possible relation between actual social rank and social anxiety however. Walters and Inderbitzen (1998) asked 1179 high school students to rate their classmates on characteristics such as 'best leader' or 'easiest to push around'. A strength of this study was that in contrast to most research, real-life groups where being investigated to test this relation, since the psychobiological framework specifically focusses on social anxiety in existing groups. The results indicated that students that were classified as submissive reported greater social anxiety than those classified as cooperative, friendly-dominant, or hostile-dominant. Although this indicates that lower dominance within a group is related to social anxiety, a number of important questions remain. For instance, the study was conducted with high school adolescents and it remains to be seen if the same results can be found in older, more mature samples. Also, although participants were asked to rate their classmates on several dimensions, they were not ranked relative to each other. Hence, their rank in terms of dominance within the group was not directly assessed. Our first aim was therefore to examine, in existing groups, if socially anxious individuals are perceived as being less dominant by their group members.

Besides the hierarchical agonistic mode, the psychobiological framework also proposes that socially anxious individuals underuse a more cooperative and affiliative hedonic mode (Trower & Gilbert, 1989). It is clear that socially anxious individuals report problems affiliating with others (Leary & Kowalski, 1995). Also, several studies indicated that individuals with social anxiety were perceived as less warm or likeable (e.g., Alden & Wallace, 1995; Meleshko & Alden, 1993; Papsdorf & Alden, 1998; Voncken & Dijk, 2013). Similarly, several studies show that socially anxious individuals have impaired relationships (e.g., Aderka et al., 2012; Davila & Beck, 2002; Rodebaugh, 2009; Schneier et al., 1994). A study of Inderbitzen, Walters, and Bukowski (1997) showed that classmates that were rejected by others reported more social anxiety. This indicates that social anxiety might also affect an individual's likeability in existing groups. However, we are not aware of any studies that tested this directly in adult samples. Furthermore, socially anxious individuals often underestimate their likeability and

social performance (Alden & Wallace, 1995; Dijk & de Jong, 2012; Rapee & Lim, 1992; Stopa & Clark, 1993). The question thus remains if, within groups, social anxiety is related to the affiliative dimension in addition to dominance.

Several studies simultaneously examined the relation of social anxiety to both dominance and affiliation. Some of them found that social anxiety was related to decreased dominance and decreased affiliation (Alden & Phillips, 1990; Walters & Hope, 1998; Weisman, Aderka, Marom, Hermesh, & Gilboa-Schechtman, 2011). Other studies showed that social anxiety was more strongly related to decreased dominance than to decreased affiliation however (Aderka et al., 2009; Berger et al., 2017; Trower et al., 1998). Also, a study by Oakman et al. (2003) showed that although social anxiety was negatively related to both warmth and dominance on self-report measures, it was only negatively related to dominance when rated by others. These mixed results could partly be explained by the heterogeneity of individuals with social anxiety. For instance, Kachin, Newman, and Pincus (2001) showed that socially anxious individuals could be categorized as having difficulties with anger, hostility, and mistrustfulness on the one hand, or with unassertiveness, exploitability, and over-nurturance on the other hand. Given these mixed findings, our second aim was therefore to explore if in addition to lower dominance ratings, social anxiety is also related to lower affiliation ratings by self and others.

To summarize, the current study expands upon previous research by testing if, in existing groups, social anxiety is related to lower dominance and lower affiliation ratings by both self and by group members, as would be predicted by psychobiological theories of social anxiety. Because socially anxious individuals tend to underestimate their performance (Alden & Wallace, 1995; Dijk & de Jong, 2012; Rapee & Lim, 1992; Stopa & Clark, 1993), we further hypothesize that more socially anxious individuals underestimate their dominance and affiliation score. Thus, social anxiety is related to larger discrepancies between the dominance and affiliation ratings of self versus others.

## 2. Material and methods

### 2.1. Participants

The participants were third-year psychology university students, who followed a series of seminars in eight groups of 11–15 students for the duration of 20 weeks. Of the 98 students that took part in this course, 79 students were present at the final seminar and participated in the study. Since self-ratings were missing for three of these students, the final analyses were conducted with the data of 76 participants.

### 2.2. Procedure

Two research assistants visited the final seminars to collect the data. Participants were told that we wanted to investigate social ranks in groups and the relation of these ranks to a number of personality characteristics.<sup>1</sup> Upon providing informed consent, participants completed the interpersonal grid and a social anxiety measure (see Section 2.3 Materials). The study was approved by the Ethics Committee of the Faculty of Social and Behavioral Sciences.

### 2.3. Materials

#### 2.3.1. Brief fear of negative evaluation-II (BFNE-II)

Social anxiety was measured with the BFNE-II (Carleton, McCreary, Norton, & Asmundson, 2006; translated into Dutch by Van Wees-Cieraad & de Jong, 2007). The 12 items are rated on a 5-point Likert

<sup>1</sup> Subsequent to the measures described here, we also administered measures of blushing-propensity and psychopathy to explore the relation of these constructs with rank and affiliation. These data are not part of the current investigation.

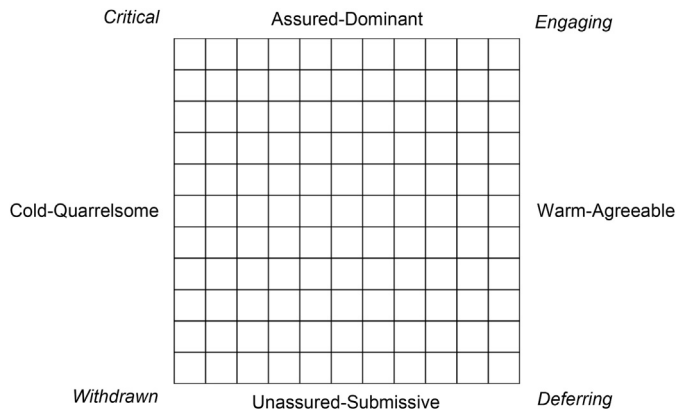


Fig. 1. The interpersonal grid.

scale ranging from ‘does not fit me at all’ (0) to ‘fits me very well’ (4). The BFNE-II demonstrates excellent internal consistency in previous studies (Carleton et al., 2006; de Hullu, Sportel, Nauta, & de Jong, 2017), as well as in the current study ( $\alpha = 0.95$ ).

2.3.2. Interpersonal grid

Participants were asked to position themselves and their classmates on an interpersonal grid (aan het Rot, Hogenelst, & Moskowitz, 2013; Moskowitz & Zuroff, 2005). The grid consisted of a rectangular arrangement of 11 × 11 squares that included a horizontal affiliation dimension ranging from Cold-Quarrelsome (0) to Warm-Agreeable (10) and a vertical dominance dimension ranging from Unassured-Submissive (0) to Assured-Dominance (10) (see Fig. 1). To ensure confidentiality while completing the grids in the classroom, participants received a list on which all classmates were indicated with a letter. This letter was randomly chosen and the lists differed for each participant. Participants were then asked to place each letter (i.e., their classmates and themselves) in a square on the grid. They could put as many letters in a specific square as they saw fit.

The square in which a participant placed him- or herself yielded his or her self-dominance and self-affiliation scores. For each participant, other-dominance and other-affiliation scores were obtained by averaging how their classmates rated them on these dimensions (in case of missing values, we averaged the remaining values). Table 1 shows the intraclass correlation coefficients (ICC) of these ratings per group (which are the absolute agreement, or ICC Case two [A, 1] from McGraw & Wong, 1996). The ICCs indicate that, in most groups, classmates reasonably agreed on the dominance position of a specific classmate. The ratings for affiliation were generally lower, indicating that classmates agree less on the warmth or agreeableness of specific classmates.

2.4. Statistics

Because individuals are nested within groups, we need to account for correlations that are due to group membership. The most straightforward way to analyze data with this structure is by means of linear

Table 1  
Interrater reliability coefficients of dominance and affiliation per group.

|         | Dominance | Affiliation |
|---------|-----------|-------------|
| Group 1 | 0.46      | 0.14        |
| Group 2 | 0.16      | 0.14        |
| Group 3 | 0.12      | 0.28        |
| Group 4 | 0.47      | 0.21        |
| Group 5 | 0.52      | 0.15        |
| Group 6 | 0.46      | 0.17        |
| Group 7 | 0.59      | 0.47        |
| Group 8 | 0.70      | 0.23        |

mixed effects models. However, the variance for the random factor ‘group’ turned out to be negligible ( $s^2 = 0$ ) indicating that there were no differences in the average ratings across the groups. In addition, for none of the dependent variables (i.e., other-dominance, other-affiliation, self-dominance and self-affiliation) there was a difference between the groups (all  $p > 0.10$ ). In such cases a fixed effects analysis is more appropriate.

To analyze, within a single analysis, if social anxiety is related to an underestimation of the self-ratings compared to the other-ratings and to analyze the main effect of social anxiety on these measures, dominance and affiliation were entered as dependent variables in two separate repeated measures analyses. In these repeated measures analyses perspective (self versus other) was a within-subjects variable and social anxiety was a continuous predictor (the BFNE-II was centered for this analysis).

3. Results

3.1. Descriptives and correlations

Fig. 2 displays the relation between social anxiety and dominance and affiliation from both perspectives (self versus other). In addition, the means and standard deviations of the dominance and affiliation scores are displayed in Table 2.

3.2. Relation between social anxiety and dominance

Table 2 shows the regression coefficients when the SIAS is used to predict the dominance and affiliation scores. In line with our first hypothesis, the analysis showed a main effect of social anxiety on the dominance ratings,  $F(1, 74) = 6.73, p = 0.011, \eta_p^2 = 0.08$ . The negative regression coefficients (see Table 2) indicate that regardless of perspective, high social anxiety was associated with lower dominance. There also was a main effect of perspective,  $F(1, 74) = 6.82, p = 0.011, \eta_p^2 = 0.08$ , indicating that participants rated themselves as more dominant than their group members did. The interaction between social anxiety and perspective was not significant,  $F(1, 74) = 0.93, p = 0.338, \eta_p^2 = 0.01$ . Thus, contrary to our second hypothesis, the difference between the self- and other-ratings of dominance seems not related to social anxiety.

3.3. Relation between social anxiety and affiliation

In contrast with our first hypothesis, there was no main effect of social anxiety on the affiliation ratings,  $F(1, 74) = 0.08, p = 0.774, \eta_p^2 < 0.01$ . Also, there was no main effect of perspective,  $F(1, 74) = 1.69, p = 0.198, \eta_p^2 = 0.02$ , and no interaction between social anxiety and perspective,  $F(1, 74) = 0.124, p = 0.726, \eta_p^2 < 0.01$ . Thus, in contrast to dominance, social anxiety seemed not related to ratings of affiliation.

4. Discussion

This study was set up to examine if social anxiety is related to dominance and affiliation in existing groups, both self-rated as well as rated by other group members. The results showed that social anxiety was negatively related to dominance but not to affiliation. Furthermore, in contrast to our hypotheses, social anxiety was not related to larger discrepancies between the ratings by self and others; regardless of the level of social anxiety, participants overestimated their own dominance compared to the ratings by their group members. Concerning the affiliation scores, there was no difference between the self- and other-ratings.

In line with the biopsychological framework, social anxiety was negatively related to the dominance ratings by group members. An important next step in understanding this finding is to examine which

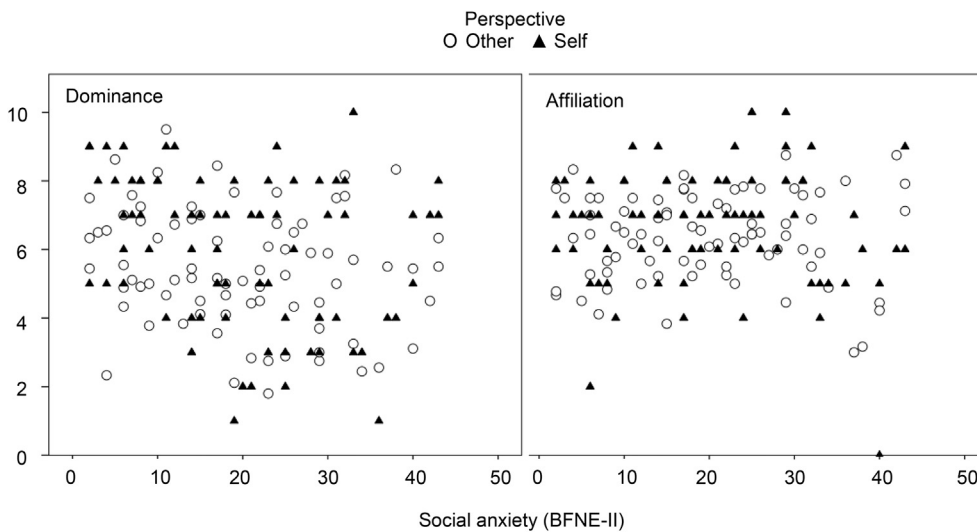


Fig. 2. The relation between social anxiety (BFNE-II) and dominance and affiliation as rated by self (triangles) and others (circles). For dominance, social anxiety significantly correlated with self-rated dominance ( $r = -0.28, p = 0.015$ ) and with other-rated dominance ( $r = -0.23, p = 0.045$ ). For affiliation, social anxiety did not significantly correlate with self-rated affiliation ( $r = -0.05, p = 0.690$ ) or with other-rated affiliation ( $r = 0.002, p = 0.985$ ).

**Table 2**  
Descriptives and regression coefficients with 95% confidence intervals for dominance and affiliation predicted by social anxiety.

|             | Self-ratings           |                                     |                   | Other-ratings          |                                     |                   |
|-------------|------------------------|-------------------------------------|-------------------|------------------------|-------------------------------------|-------------------|
|             | <i>M</i> ( <i>SD</i> ) | <i>b<sub>sa</sub></i> ( <i>SE</i> ) | 95% CI            | <i>M</i> ( <i>SD</i> ) | <i>b<sub>sa</sub></i> ( <i>SE</i> ) | 95% CI            |
| Dominance   | 6.00<br>(2.21)         | -0.61*<br>(0.25)                    | [-1.10,<br>-0.12] | 5.44<br>(1.75)         | -0.40*<br>(0.20)                    | [-0.79,<br>-0.01] |
| Affiliation | 6.68<br>(1.69)         | -0.08<br>(0.20)                     | [-0.47,<br>0.31]  | 6.36<br>(1.29)         | 0.01<br>(0.15)                      | [-0.29,<br>0.30]  |

Note. The difference between the regression coefficients for dominance and affiliation was significant for both self-ratings ( $Z = -1.70, p = 0.046$ ) and other-ratings ( $Z = -1.63, p = 0.051$ ) ratings.

\*  $p < 0.05$ .

behaviors actually cause a subordinate position. Anderson and Kilduff (2009a), for instance, showed that individuals who score high on trait dominance often provide an answer before other group members do, and that this helps them gain a more influential position within a group. This bold social behavior is clearly not typical for socially anxious individuals. It remains a question, however, what the most important cause for a subordinate position is: signs of submissiveness, the absence of signaling competence, or both. Another reason to study actual dominance behaviors is that in our study, the relation between social anxiety and dominance within a group was not extremely strong and that there were several relatively high anxious individuals with dominant positions (see also Fig. 2). This suggests that there might be other behaviors that also affect one's dominance within a group. For example, individuals who commit to a group by behaving altruistically also gain in status (Hardy & Van Vugt, 2006). Thus, a useful next step would be to examine how the behaviors of dominant individuals with social anxiety differ from the behaviors of socially anxious individuals with submissive positions.

We did not find that social anxiety was related to being perceived as less warm or agreeable. This concurs with studies showing that social anxiety is more related to dominance than to affiliation problems (e.g., Aderka et al., 2009; Oakman et al., 2003). However, it is in clear contrast with several other studies showing that socially anxious individuals receive more negative judgments from a confederate that acted as an interaction partner in a lab (e.g., Alden & Wallace, 1995; Meleshko & Alden, 1993; Voncken & Dijk, 2013). It might be that in more natural settings - such as in the present study - the social rejection of socially anxious individuals is less evident than in lab settings. For example, Heerey and Kring (2007) showed that although people rate the interaction with a socially anxious individual as being lower in

quality, they nevertheless show empathy and support. Another important factor might be the amount of time spent with each other. One study showed that although friends of socially anxious individuals recognize the social problems of these individuals, social anxiety has only limited impact on relationship satisfaction and intimacy on their account (Rodebaugh et al., 2014). Also, an experimental study by Voncken and Dijk (2013) showed that ratings of socially anxious individuals' likeability improved after a second (more structured) interaction. These results suggest that it is important to study the relation between social anxiety and rejection in terms of warmth and affiliation in longitudinal and naturalistic studies, because it might be that this relation varies over time and rejection only exists during initial encounters.

This study has several limitations. First, the generalizability of the results is limited due to the relatively structured setting in which the groups interacted. During the weekly seminars, the lecturer actively encouraged group members to participate in group discussions, and all members had to participate in activities in which they had to speak up before the group. This might also explain why participants tended to overestimate their dominance, in particular those participants who showed more of themselves than they would usually do. Also, as dominance is especially related to the visibility of competence (Anderson & Kilduff, 2009b), it might be that the relationship between dominance and social anxiety is stronger in groups where this behavior is not required. Likewise, interaction studies show that socially anxious individuals benefit from more structured settings (Thompson & Rapee, 2002; Voncken & Dijk, 2013). Thus, it might be that socially anxious individuals do experience social rejection in groups where the social rules are less clear. A second constraint on the generalizability of the results may be the inclusion of students with various levels of social anxiety rather than an exclusively clinical population. It could be that particularly relevant social behaviors only occur in individuals with high levels of social anxiety. Although results do not hint in such a direction (see for example Fig. 2), our results should therefore be treated with caution when extending them to clinical populations.

### 5. Conclusions

The current study showed that social anxiety is related to dominance within a group, but not to warmth and agreeableness. Future research should investigate if this is also true in other types of groups, including clinical samples. Also, these results show that it is necessary to investigate social evaluations about individuals with social anxiety in more naturalistic and longitudinal research. If these future studies confirm that social anxiety is not linked to rejection as measured on an

affiliation dimension, it might be especially worthwhile to focus therapy on safety behaviors that prevent an individual from appearing competent instead of on behaviors that are linked to likeability (cf. Hofmann, 2007).

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