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Deficits in joint action explain why socially anxious individuals are less well liked

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Abstract

Background and Objectives: Socially anxious individuals elicit less positive reactions from interlocutors than non-anxious individuals, but evidence for a distinctive social anxiety linked behaviour deficit to explain this finding has been sparse. We investigated whether socially anxious individuals engage less in *joint action* - a process which promotes rapport and usually arises spontaneously between conversation partners when they actively attend to the conversation.

Methods: In Study 1, participants with high fear of negative evaluation, and low fear of negative evaluation conversed with a peer. Study 2 simulated the cognitive impact of anxiety-linked threat focus in non-anxious participants via a partial distraction task and measured the social consequences.

Results: In Study 1, listeners with high fear of negative evaluation made fewer collaborative contributions to a partner's anecdote (an index of joint action). In Study 2, non-anxious distracted listeners showed the same behavioural pattern (fewer collaborative responses) and were less well-liked by their conversation partners, compared to non-distracted listeners.

Limitations: We coded for only one marker of joint action. Future research should identify further indices of connectedness between partners. In addition, both studies were conducted with small groups of university students, and future research should be conducted on larger samples selected on the basis of social anxiety, not fear of negative evaluation alone.

Conclusions: Together, these findings indicate that socially anxious individuals engage less in the shared task of conversation, and this behaviour attracts less positive responses from conversation partners.

Keywords

social anxiety; joint action; forward modelling; person perception;
interpersonal coordination; conversation

1. Introduction

Conversation with a socially anxious person is less rewarding than conversation with a non-anxious person (Heerey & Kring, 2007). Conversation partners find socially anxious individuals less socially skilled (Bögels, Rijsemus, & De Jong, 2002; Inderbitzen-Nolan, Anderson, & Johnson, 2007; Segrin & Kinney, 1995; Voncken & Bögels, 2008), less warm and interested (Alden & Wallace, 1995), and less likeable and comfortable to be with (Meleshko & Alden, 1993). Partners are less likely to want to meet with anxious individuals again in the future (Papsdorf & Alden, 1998; Voncken & Dijk, 2013). We propose that socially anxious individuals engage less in behaviour that complements or ‘comes together’ with a partner’s coinciding behaviour. The heightened threat-monitoring and safety-seeking associated with fear of negative evaluation is likely to disrupt a socially anxious person’s capacity coordinate because it leaves fewer mental resources for mentally modelling a partner’s behaviour in the moment.

Like a piano duet or a ballroom dance, conversation is an instance of *joint action* that depends on finely tuned coordination between partners (Clark, 1996). An example from the current study illustrates this. The speaker is explaining a close call to her partner:

Speaker: And they put an air thing underneath and they try and-

Listener: *[nod, wince] lift the vehicle...*

Speaker: *[nod]* and they get it up, like, five inches. But she’s that squashed, they can’t pull her out.

Listener: *[widened eyes, alarm] pull her out!*

Speaker: *[nod]* Yeah!

Despite never having heard this story, the listener contributes to the narrative. She illustrates emotional content of the story with fitting facial expressions (wincing, widened eyes). At one point,

she helps the speaker complete an utterance (the overlapping “lift the vehicle”) - the speaker acknowledges the help (with a nod) and seamlessly continues the utterance where the listener left off. Later, the listener correctly anticipates the speaker’s next utterance and amplifies the excitement by co-speaking part of it (simultaneously saying “pull her out”). Such tightly woven coordination is achieved by mutual *forward modelling* - rather than simply perceiving speech and actions, interlocutors actively mentally ‘co-produce’ one another’s behaviour in real time (Pickering & Garrod, 2013), which means they can effortlessly predict one another’s next move and coordinate their contributions precisely.

Socially anxious individuals are likely to be less able to engage in the close moment-by-moment attention required for forward modelling because during conversation a substantial proportion of their attention is allocated self- and performance-related information. Fearing negative evaluation, anxious individuals preferentially allocate attention to their own behaviour and bodily sensations (Alden & Mellings, 2004; Stevens et al., 2010), are vigilant specifically for cues relevant to how they are coming across (Bögels & Mansell, 2004), often picture themselves from an observer perspective (Hackmann, Clark, & McManus, 2000) and routinely engage in safety-seeking behaviours like mentally rehearsing utterances before speaking aloud (Clark & Wells, 1995).

Study 1 tests the novel hypothesis that socially anxious individuals’ behaviour is less coordinated with an interlocutor. We use a storytelling task; narrators have two conversations - one with a listener with a high level of fear of negative evaluation (FNE) and one with a listener with low FNE - and listener responses are measured as an index of joint action. If our hypothesis is correct, high FNE listeners will provide fewer collaborative listener responses, like those in the excerpt above.

2. Study 1

Bavelas, Coates and Johnson (2000) identified two types of listener contributions: (a) *specific responses*, in which the listener becomes involved in the telling of the story (e.g., supplying words,

making expressions to illustrate affect); and (b) *generic responses*, which function as ‘receipts’ of understanding, but do not become part of the story (e.g., nods, “mhm”, “yeah”). Specific responses (like the co-speaking of “pull her out”, above) are only possible when partners engage in forward modelling, whereas generic responses require fewer mental resources and can be made on the basis of passive comprehension, or even perception of surface features of the speech (e.g., pauses, intonation). If threat focus in social anxiety impedes listeners’ ability to forward model their partner’s behaviour, then we expect specific responses to be more disrupted than generic responses.

2.1 Method

2.1.1. Participants

Participants ($n = 69$; 21 males) were undergraduates (age: $M = 18.71$ years, $SD = 2.45$) recruited from a larger sample ($N = 843$) on the basis of their score on the Brief Fear of Negative Evaluation Scale, Revised (BFNE-II; Carleton, Collimore, & Asmundson, 2007). Narrators were recruited from the lower half of the BFNE-II distribution ($n = 23$) and listeners (23 with high levels of FNE, 23 with low FNE) were recruited from the upper and lower quartiles.

2.1.2. Measures

At the time of testing, participants completed the Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998) and the Brief Fear of Negative Scale, Revised (BFNE-II; Carleton et al., 2007).

2.1.3. Procedure

Participants were organised into 23 same-sex, three-person groups (7 male groups). Each group had one high FNE listener, one low FNE listener and one narrator. The narrator spoke with each listener separately, yielding two dialogues per session. We used a variant on Bavelas et al.’s (2000) ‘close call’ conversation paradigm. Two brief rescue documentaries were used as conversation pieces. The narrator viewed the first video, then joined the first listener and discussed what

happened in the video. Next, the narrator watched the second video, then joined the second listener to discuss. Sessions were video-recorded. Conversation length did not differ for interactions with a high FNE versus low FNE listener ($M = 3\text{min } 21\text{sec}$, $SD = 49\text{sec}$; $t(35) = 1.01$, $p = .318$). A maximum of 4 min of conversation was analysed.

Data for eight anxious participants were excluded because their BFNE-II scores on the day of testing fell below the population mean ($M=14.58$; Carleton et al., 2009). One low FNE participant was excluded because their BFNE-II score fell above the population mean. For the remaining 37 interactions, (15 with a high FNE listener, 22 with a low FNE listener), the first author viewed video footage and identified generic and specific listener responses using criteria developed by Bavelas et al. (2000).

Listener responsiveness was operationalised as a ratio of responses to number of ideas discussed. Conversation transcripts were segmented into single-idea units (propositions; Kintsch, 1974) and the mean number of idea units per listener response was calculated for each dyad. Higher scores indicate less responsive listening (i.e., more ideas discussed between each response indicates less frequent responding). Specific listener response data from one conversation was omitted because the listener did not contribute any specific responses, meaning a valid ratio could not be calculated.

Two independent coders, both blind to the experimental hypotheses, coded a third of conversations. One coder counted the frequency of listener responses in each conversation and showed high agreement with the author CM ($r = .94$). The other coder classified listener responses as generic, specific, or 'other' (e.g., non-communicative behaviours such as coughing), and also showed high agreement with the author CM ($\text{Kappa} = .82$, $k = 2$, $n = 436$, $p < .05$).

2.2. Results

High FNE listeners scored more highly than low FNE listeners on the SIAS ($M = 32.85$, $SD = 11.90$ vs. $M = 16.85$, $SD = 8.07$; $t(31) = 4.54$, $p = .001$, $d = 1.62$) and the BFNE-II ($M = 19.54$, SD

= 3.82 vs. $M = 6.95$, $SD = 3.28$; $t(31) = 10.09$, $p < .001$, $d = 3.59$). Self-report scores were not recorded for two of the triads (four participants) due to technical errors, leaving $n = 33$ for analyses of social anxiety scores.

A 2 x 2 ANOVA (response type x FNE) returned a main effect of response type on rate of responding. Listeners nodded or gave other generic 'receipts' more frequently ($M = 1$ response per 4.47 ideas, $SD = 5.36$), than specific, co-narrating responses ($M = 1$ response per 21.50 ideas, $SD = 22.14$; $F(1,34) = 37.20$, $p < .001$, $\eta_p^2 = .52$). There was also a main effect of FNE on rate of responding. High FNE listeners responded less frequently ($M = 1$ response per 18.87 ideas, $SD = 12.18$) than low FNE listeners ($M = 1$ response per 8.48 ideas, $SD = 10.42$; $F(1,34) = 7.02$, $p = .012$, $\eta_p^2 = .17$).

Consistent with our prediction, there was an interaction between response type and FNE ($F(1,34) = 12.40$, $p = .001$, $\eta_p^2 = .27$); as Figure 1 shows, high FNE listeners made specific responses less frequently than low FNE listeners ($t(20.93) = 2.89$, $p = .009$, $d = 1.06$; adjusted for inequality of variance), but the difference in frequency of generic responses between groups was not significant ($t(35) = 0.37$, $p = .714$, $d = 0.12$).

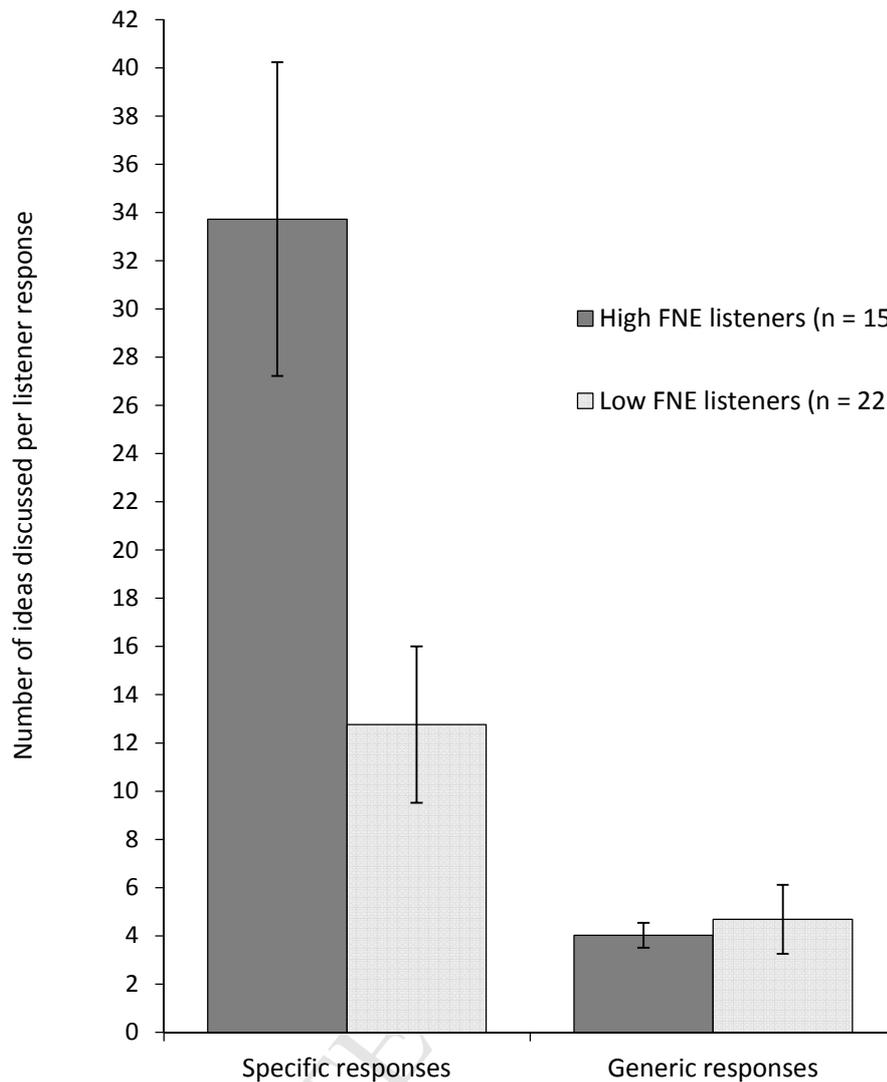


Figure 1. Mean number of ideas discussed per listener response (generic, specific) for conversations involving high FNE and low FNE listeners in Experiment 1. Error bars indicate the standard error of the means. Higher scores indicate less responsive listening (i.e., a greater number of ideas discussed per listener response indicates less frequent responding).

3. Study 2

Study 1 showed that high FNE individuals engage less in joint action. Study 2 considers whether this less collaborative listening behaviour can help explain socially anxious individual's difficulty in making and sustaining social relationships. Even small disruptions to joint action can make an interaction less smooth and enjoyable for a person directly involved in the interaction

(Bernieri & Rosenthal, 1991), so we expect less collaborative listening to be associated with less positive partner impressions.

Study 2 engaged listeners who did not fear negative evaluation in a partial distraction task; whilst listening to their partner, they identified words spoken beginning with ‘t’. The task simulates the cognitive demands of threat-monitoring in social anxiety (allows listeners to attend enough to comprehend speech, but disrupts their capacity for detailed forward modelling), but does not evoke the feelings of anxiety associated with social threat. Removing anxiety from the equation in Study 2, we can isolate the social consequences of poor collaborative listening from other observable features of social anxiety (e.g., dysphoric mood or visible anxiety).

3.1. Method

3.1.1. Participants

Participants ($n = 42$; 12 males) were undergraduates (age: $M = 18.79$ years, $SD = 1.62$) recruited from a larger sample ($N = 476$) on the basis of their score on the BFNE-II (Carleton et al., 2007). Those scoring in the lower half of the BFNE-II distribution were invited to participate in Study 2.

3.1.2. Measures

As per Study 1, participants completed the SIAS (Mattick & Clarke, 1998) and the BFNE-II (Carleton et al., 2007). In addition, narrators recorded their impression of each listener by rating them (on a 1-10 Likert scale) on each of the following descriptors: ‘likeable’, ‘warm’, ‘friendly’, ‘socially skilled’, and ‘easy to talk to’. The five items were summed to yield a single interpersonal rating for each listener ($\alpha = .95$).

3.1.3. Procedure

Participants were organised into 14 same-sex, three-person groups (4 male groups) and randomly assigned a role: narrator, distracted listener or non-distracted listener. As before,

narrators ($n = 14$) watched the close-call videos and spoke with each listener in turn. During the conversation, and unbeknown to the narrator, listeners in the distraction condition ($n = 14$) counted the number of words spoken by the narrator that began with 't'. No intervention was made to participants in the non-distracted control condition ($n = 14$). Conversation length did not differ for interactions with a distracted and non-distracted listener ($M = 2\text{min } 30\text{sec}$, $SD = 47\text{sec}$; $t(23) = .29$, $p = .778$, $d = .11$).

As per Study 1, the conversation transcripts were segmented into single-idea units and the mean number of ideas per listener response was calculated for each dialogue. Two independent coders coded a third of the conversations. One coder counted the frequency of listener responses in each conversation, and showed high agreement with the author CM ($r = .96$). The other coder classified listener responses as generic, specific or 'other', and showed high agreement with the author CM (Kappa = .82, $k = 2$, $n = 289$, $p < .001$).

3.2. Results

Social anxiety scores for distracted and non-distracted listeners were not significantly different (BFNE-II: $M = 11.86$, $SD = 5.74$; $t(26) = 0.19$, $p = .848$; SIAS: $M = 21.82$, $SD = 9.42$; $t(26) = .02$, $p = .984$).

A 2 x 2 ANOVA (response type x listener distraction) revealed the same behavioural pattern as observed for high FNE versus low FNE listeners in Study 1. There was a main effect of response type on rate of responding. Listeners gave generic responses more frequently ($M = 1$ response per 3.90 ideas, $SD = 2.42$), than specific responses ($M = 1$ response per 14.39 ideas, $SD = 13.40$; $F(1,26) = 20.39$, $p < .001$, $\eta_p^2 = .44$). There was also a main effect of distraction on rate of responding. Distracted listeners responded less frequently ($M = 1$ response per 12.38 ideas, $SD = 8.17$), than non-distracted listeners ($M = 1$ response per 5.90 ideas, $SD = 2.96$; $F(1,26) = 7.79$, $p = .010$, $\eta_p^2 = .23$).

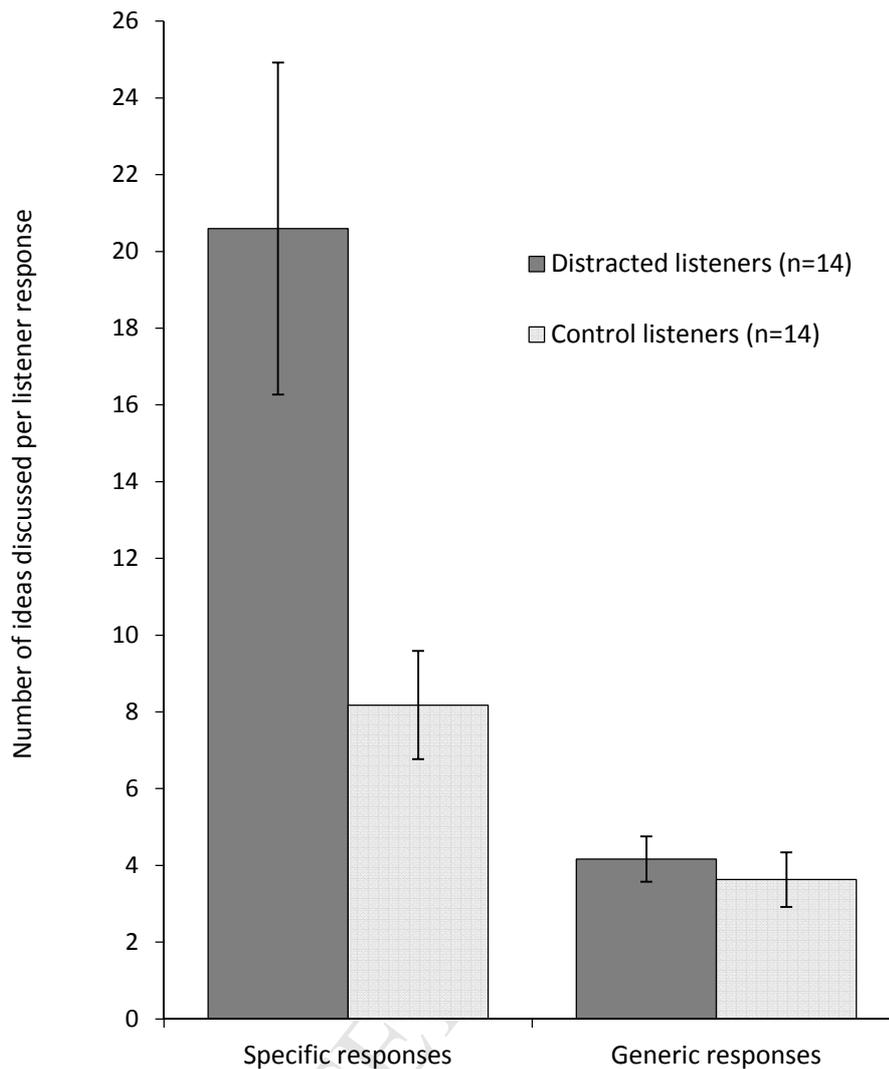


Figure 2. Mean number of ideas discussed per listener response (generic, specific) for conversations involving distracted and non-distracted listeners in Experiment 2. Error bars indicate the standard error of the means. Higher scores indicate less responsive listening (i.e., a greater number of ideas discussed per listener response indicates less frequent responding).

There was an interaction between response type and distraction ($F(1,26) = 6.54, p = .017, \eta_p^2 = .20$). As Figure 2 shows, distracted listeners made specific responses less frequently than non-distracted listeners ($t(15.74) = 2.73, p = .015, d = 1.03$; adjusted for inequality of variance), but the difference in frequency of generic responses between groups was not significant ($t(26) = 0.58, p = 0.57, d = 0.22$).

Conversation partners rated distracted listeners less positively than non-distracted listeners on the interpersonal impressions scale ($M = 33.09$, $SD = 5.84$ and $M = 38.82$, $SD = 4.00$ respectively; scale range: 5-50; paired-samples $t(10) = 3.38$, $p = .007$, $d = 1.02$).

4. Discussion

The studies described identify a novel behavioural deficit in social anxiety that can help explain why socially anxious individuals are less well liked by interlocutors. Study 1 found that high FNE participants made fewer collaborative contributions to a partner's anecdote. Study 2 showed that this less interactive listening style can contribute to lower partner approval, quite apart from the potential influence that other features of anxiety may have on a partner's impressions. Non-anxious participants who were partially distracted from conversations and showed the same lack of engagement in joint action, and attracted less positive ratings from their partner.

Compared to control participants, both high FNE listeners (in Study 1) and distracted listeners (in Study 2) provided fewer specific listening responses, but not fewer generic responses. This is the pattern we expect if socially anxious individuals have a reduced capacity to forward model their conversation partner's behaviour. The data are consistent with key models of social anxiety which assume that anxious individuals' focus on their own 'performance' disrupts their social functioning and ironically increases the likelihood of negative evaluation from others (Clark, 2005; Rapee & Heimberg, 1997). We propose that poor engagement in joint action is an important behavioural link in this self-fulfilling prophecy.

An alternative explanation for the findings of Study 1 is that socially anxious individuals' capacity to forward model their partner's linguistic behaviour is not comprised; they simply inhibit their behaviour during conversation to reduce opportunities for negative evaluation. An inhibition explanation is unlikely, as previous research has returned mixed findings as to whether anxious individuals speak less, or in shorter utterances (cf. Baker & Edelmann, 2002; Beidel, Turner, & Dancu, 1985; Heerey & Kring, 2007; Stevens et al., 2010) and has returned no anxiety-linked

differences in the overall duration or frequency nodding, smiling, looking at a partner or gesturing (e.g., Baker & Edelmann, 2002; Heerey & Kring, 2007; Papsdorf & Alden, 1998; Pilkonis, 1977; Segrin & Kinney, 1995). Indeed, socially anxious individuals are not less disclosive overall, but reciprocate their partners' level of self-disclosure to a lesser extent (Meleshko & Alden, 1993); and smile as frequently as non-anxious others, but are less likely to reciprocate the type of smile their partner gives (Heerey & Kring, 2007).

This pair of studies represents the first attempt to explicitly consider collaborative interpersonal processes as a potential area of shortcoming for people with social anxiety. Further enquiry in this direction is warranted now to address limitations in the research. Study 1 used participants high and low in fear of negative evaluation, which, while a core feature of social anxiety, is not equivalent to social anxiety per se. In addition, both studies were conducted with small samples of university students. It will be important now to replicate these findings in larger-scale studies, and to extend the interpersonal approach to research with clinical samples.

Poor engagement in joint action represents an important barrier to anxious individuals' developing social relationships. Joint action makes conversation easy (Clark, 1996) and fosters empathy and liking (Lakens, 2010). Here, we coded for only one marker of joint action. Conversation partners' actions match, complement or come together at many levels – they imitate one another's facial expressions, postures and gestures (Chartrand & Bargh, 1999), they converge on an overall rhythm (Bernieri & Rosenthal, 1991), and they negotiate turn-taking via synchronised windows of eye contact (Bavelas, Coates, & Johnson, 2002). Future research should identify more indices of connectedness between partners to complete this emerging interpersonal-behavioural profile of social anxiety.

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