J. Behav. Ther. & Exp. Psychiat. 50 (2016) 147–151

Contents lists available at ScienceDirect

Journal of Behavior Therapy and Experimental Psychiatry

journal homepage: www.elsevier.com/locate/jbtep

Short report

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

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ARTICLE INFO

Article history:
Received 26 September 2014
Received in revised form
23 June 2015
Accepted 1 July 2015
Available online 6 July 2015

Keywords:
Social anxiety
Joint action
Forward modelling
Person perception
Interpersonal coordination
Conversation

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.

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, & DeJong, 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

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http://dx.doi.org/10.1016/j.jbtep.2015.07.001
0005-7916/

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 ($M = 3$ min 21sec, $SD = 49$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 (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 Fig. 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