



Interpretation biases in social anxiety: Response generation, response selection, and self-appraisals

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Abstract

Cognitive theories propose that the resolution of ambiguity is related to the maintenance of social anxiety. A sentence completion task was used to examine how individuals high ($n = 26$) and low ($n = 23$) in social anxiety resolve ambiguous social sentences. Individuals were asked to generate as many responses as came to mind for each sentence, and then to endorse the response that best completes the sentence. Total responses, first responses, and endorsed responses were examined separately. Results indicated that high anxious individuals had more negative and anxious responses and fewer positive and neutral responses than low anxious individuals on all sentence completion measures. In contrast, a self-report measure of interpretation bias indicated that more of negative and anxious appraisals were related to social anxiety, while positive and neutral appraisals were not. Results are discussed in terms of a multi-stage processing model of interpretation biases.

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Introduction

Cognitive-behavioral theories of social phobia propose that the manner in which one interprets an ambiguous social interaction plays an important role in the maintenance of social anxiety (Clark, 2001; Huppert & Foa, 2004; Rapee & Heimberg, 1997). Given that the feedback in social interactions is usually ambiguous (i.e., one rarely receives uncensored praise or criticism), the resolution of this ambiguity provides an important source of information to the individual in how one construes oneself as a social being. If one ultimately interprets ambiguous social feedback as positive, then he/she is more likely to see himself/herself as more competent whereas if the interpretation is ultimately negative, he/she is more likely to see himself/herself as incompetent and will therefore be more anxious. However, if the resolution of ambiguity involves the elicitation of multiple interpretations in response to an ambiguous scenario followed by the selection of a

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single interpretation, then it is possible that both positive and negative responses will be generated initially. One question that arises from this reasoning is whether individuals with social anxiety differentially generate responses to ambiguous scenarios or if they only differentially select negative or positive interpretations.

No research on interpretation biases in social anxiety has examined generation of multiple interpretations of a single ambiguous social scenario. Instead, single interpretations are presented within reaction time paradigms (Amir, Beard, & Przeworski, 2005; Hirsch & Mathews, 2000), single responses to open-ended scenarios are examined with the assumption that the first response to come to mind is equivalent to the endorsed response (Franklin, Huppert, Langner, Leiberg & Foa, 2005; Stopa & Clark, 2000), or multiple interpretations are passively presented and rank ordered (Amir, Foa, & Coles, 1998; Stopa & Clark, 2000) or rated (Huppert, Foa, Furr, Filip, & Mathews, 2003). Thus, the main goal of this study is to examine whether multiple interpretations of ambiguous social scenarios evoke a lack of positive interpretations, the presence of negative interpretations, or both, and how these responses relate to first and explicitly endorsed responses.

In one of the first studies to examine open-ended responses to ambiguous social scenarios, Stopa and Clark (2000) investigated interpretation bias associated with social anxiety by presenting participants with ambiguous social and ambiguous non-social scenarios and eliciting a single written interpretation for each scenario. Participants with social anxiety generated more negative interpretations of ambiguous social scenarios than participants with other anxiety disorders and controls. The findings from Stopa and Clark were replicated by Franklin et al. (2005), who showed that untreated patients exhibited a bias towards negative interpretations while successfully treated socially phobic patients did not exhibit a negative interpretation bias.

In contrast, some studies have reported that individuals with social anxiety lack a positive interpretation bias, but do not evidence a negative interpretation bias (Amir, Beard, & Bower, 2005; Hirsch & Mathews, 1997, 2000). In the earliest of these studies in socially anxious individuals, Hirsch and Mathews (1997) found evidence for the role of lack of positive bias in maintaining social anxiety. A reaction time paradigm was utilized to investigate immediate responses to positive or negative interpretations of ambiguous scenarios. Individuals low in social anxiety responded faster to the positive words than individuals who were high in social anxiety, but the two groups did not differ in their speed of responses to negative words. Hirsch and Mathews (2000) replicated these results with clinically socially anxious participants. These findings were interpreted as indicating that socially anxious individuals lack positive on-line inferences to ambiguous social scenarios. Similar findings have been reported by others utilizing other reaction time paradigms (e.g., Amir, Beard, & Przeworski, 2005).

To examine these seemingly conflicting results, Huppert et al. (2003) investigated both the presence of a negative bias and the lack of a positive bias separately by asking individuals to rate the similarity of positive and negative interpretations of previously presented ambiguous scenarios as a recall task. The results showed that: (1) severity of social anxiety was related to interpreting an ambiguous social situation negatively; (2) lack of positive bias was more related to general anxiety than to social anxiety; and (3) negative and positive interpretation biases were not strongly related. The authors suggested that these two biases should be measured separately, and that both may play a role in the maintenance of social anxiety.

To our knowledge, no studies have utilized sentence completion tasks to examine interpretation processes in social anxiety, although such tasks may provide an adequate method for elucidating such biases. Indeed, sentence completions tasks are frequently used to tap into multiple semantic networks that are activated by incoming stimuli (Kutas & Hillyard, 1984; Williams & Colombo, 1995). In fact, there is evidence that several meanings are activated when a participant is exposed to an ambiguous word (Gernsbacher, 1991), and the same may be true for ambiguous sentences. Once multiple meanings are activated, processes of enhancement and/or suppression lead to a final resolution of meaning (c.f., Gernsbacher & St. John, 2001; MacLeod, Dodd, Sheard, Wilson, & Bibi, 2003; McNamara & McDaniel, 2004 for a detailed discussion regarding the controversies regarding the concept of suppression). Regardless of the mechanism involved, it appears that multiple semantic networks are activated when presented with incoming ambiguous stimuli and that the individual ultimately selects one meaning over another. Therefore, a sentence completion paradigm in which multiple responses to each sentence are obtained may be utilized to stimulate the multiple networks.

The present study examined interpretation biases in social anxiety utilizing a sentence completion task and a self-report measure. This procedure extends the work of Stopa and Clark (2000) and Franklin et al. (2005), where participants were instructed to write only the first response that came to mind. First, participants were

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