

## COGNITIVE BIASES IN SOCIAL PHOBIA

Michel W. Eysenck\*

Royal Holloway University of London

**Resumen:** La fobia social se caracteriza por la presencia de un gran número de sesgos cognitivos, entre los que se incluyen atencionales, interpretativos y de memoria. De esos sesgos, probablemente los más importantes son los interpretativos, que se manifiestan en un inadecuado miedo en su conducta social. Existen dos razones por las que se mantienen estos sesgos interpretativos: (1) los fóbicos sociales realizan conductas de búsqueda de su seguridad, lo que les limita el feedback sobre su conducta social que pueden obtener en su relación con los otros; y (2) focalizan la atención sobre sus síntomas fisiológicos internos, usando esa información para inferir cómo los otros los perciben. Una importante parte de la terapia cognitivo-conductual está dirigida a la reducción de los sesgos interpretativos utilizando técnicas para reducir el uso de conductas que alteren su foco de atención, desde las reacciones internas a las reacciones de los otros.

**Palabras Clave:** Fobia social, Ansiedad, Sesgos cognitivos.

**Abstract:** Social phobics possess a variety of cognitive biases, including selective attentional, interpretive, and memory biases. Of these biases, the most important is probably the interpretive bias in which social phobics exaggerate the inadequacy of their social behaviour. There are two main reasons why this interpretive bias is maintained: (1) social phobics engage in safety-seeking behaviours, which limit the feedback about their social behaviour that they obtain from other people; and (2) social phobics attend to their own internal physiological symptoms, and use this information to infer how anxious they seem to others. An important part of cognitive-behaviour therapy should involve attempts to reduce to eliminate interpretive bias by decreasing social phobics' use of safety-seeking behaviours and by altering their attentional focus from internal sensations to the reactions of others.

**Key words:** Social phobia, Anxiety, Cognitive biases

**Title:** *Cognitive biases in social phobia*

### Introduction

Social phobia was not officially recognised as an anxiety disorder until the publication of DSM-III in 1980. However, the situation has changed in more recent years, and social phobia was recognised as one of the major anxiety disorders in DSM-IV. It has a high prevalence rate in the United States and Europe. For example, Magee, Eaton, Wittchen, McGonagle, and Kessler (1996) found in the National Comorbidity Survey that there was a lifetime prevalence for so-

cial phobia of 13.3% in the United States, which was higher than for any other anxiety disorder. In a recent European study, Weiller, Bisserve, Boyer, Lepine, and Le-crubier (1996) reported a lifetime prevalence of approximately 15%, which corresponds closely to the American figure.

It is only over the past 10 or 15 years that there has been systematic research to identify the major cognitive components of social phobia. Most of this research has focused on various cognitive biases that may or may not be associated with social phobia. In general terms, it has been assumed that social phobics may show biases

\* Dirigir la correspondencia a: Professor Michael W. Eysenck, Department of Psychology, Royal Holloway University of London, Egham, TW20 0EX, U.K.

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towards processing socially threatening information at several levels within the information-processing system. For example, they may attend selectively to such information (selective attentional bias), they may tend to interpret ambiguous stimuli and situations in a socially threatening fashion (interpretive bias), and they may tend to recall disproportionately more socially threatening information than other kinds of information (memory bias).

Theoretical development in this area undoubtedly owes more to Aaron Beck than to anyone else. Beck has for many years argued in favour of a schema-based theoretical approach to the anxiety disorders. In the words of Beck and Clark (1988, pp. 24-26), "Cognitive structures [i.e., schemas] guide the screening, encoding, organising, storing and retrieving of information. Stimuli consistent with existing schemas are elaborated and encoded, while inconsistent or irrelevant information is ignored or forgotten...the maladaptive schemas in the anxious patient involve perceived physical or psychological threat to one's personal domain as well as an exaggerated sense of vulnerability." According to this schema-based approach, it would be expected that patients suffering from anxiety disorders would have attentional, interpretive, and memory biases for threat-related information, especially if it is of direct relevance to the major concerns of social phobics.

The evidence regarding the three cognitive biases mentioned above will be discussed shortly, after we have considered some of the general issues raised by such research. Most of the studies on cognitive biases in patients suffering from social phobia have used stimuli and situations that are only tenuously related to those encountered by social phobics in their everyday social lives. The limitations of much cognitive

research on the anxiety disorders generally were clearly identified by McNally (1995, p. 750): "Most cognitive bias research has involved the processing of visual and auditory verbal stimuli, and is therefore somewhat artificial in that verbal cues act as proxies for the genuine threat stimuli that anxious patients presumably selectively process in ordinary life. Thus, for example, researchers have assumed that the biased attentional mechanisms that figure in panic patients' exhibiting Stroop interference for the word heartbeat are the same as those that figure in enhanced interoceptive acuity for actual heartbeats...Needless to say, this assumption warrants further justification."

It may be useful to consider the applicability of McNally's (1995) criticisms to research specifically on social phobia. Several theorists (e.g., Eysenck, 1997; Clark & Wells, 1995) have argued that social phobics have cognitive biases mainly for their own behaviour and internal physiological activity. As a consequence, the most direct way of testing these theories would involve assessing attentional and interpretive processes applied to these stimuli. In fact, most of the research on cognitive biases in social phobics has involved the presentation of words (e.g., embarrassed; incompetent) that seem related to the stimuli that are actually predicted to be subject to cognitive biases.

### **Selective attentional bias**

According to the theoretical positions of Clark and Wells (1995) and Eysenck (1997), social phobics have a selective attentional bias primarily for their own behaviour. It has often been assumed by other theorists that social phobics also have a selective attentional bias for the reactions of other people in social situations. However, this assumption was not made by Eysenck

(1997, p. 136), who pointed out that, "The theory [four-factor theory] predicts that their main focus should be on their own behaviour rather than on the reactions of others."

Most of the studies on selective attentional bias in social phobics published in the literature fail to address adequately the theoretical issues just discussed. However, as our relatively brief review will indicate, there is reasonable evidence that social phobics have a selective attentional bias, even if its precise extent remains unclear. Two of the earliest studies (Hope, Rapee, Heimberg, & Dombeck, 1990; Mattia, Heimberg, & Hope, 1993) made use of the modified Stroop task. On this task, the participants have to name the colours in which words are printed. Those who take longer to colour-name with threat-related words than with neutral ones are assumed to be attending excessively to the threat-related words, and thus are showing a selective attentional bias. Hope et al. (1990) and Mattia et al. (1993) found that social phobics had a selective attentional bias for social threat words but not for physical threat words. In addition, Mattia et al. (1993) discovered that this attentional bias was no longer present in social phobics who responded well to treatment.

There are more problems with interpreting the findings from studies of the modified Stroop task than are generally acknowledged. The crucial point was made clearly by De Ruiter and Brosschot (1994, p. 317): "The increased Stroop interference might...be the result of an attempt to avoid processing the stimulus because it contains emotionally valenced information...Attentional bias occurs in the early stages, and cognitive avoidance at later stages." However, there is evidence confirming the findings of Hope et al. (1990) and Mattia et al. (1993) based on another para-

digm that poses fewer interpretive problems. This is the dot-probe task, in which two words are presented concurrently. One of these words is sometimes replaced by a dot, to which the participants must respond as rapidly as possible. The crucial condition is when one word is threat-related and the other is neutral. Faster responding to the dot when it replaces the threat-related word than when it replaces the neutral word is assumed to indicate a selective attentional bias. Asmundson and Stein (1994) used both social and physical threat words in the dot-probe task. Social phobics showed an attentional bias only to the social threat words. Asmundson and Stein (1994, p. 115) concluded that, "patients suffering from SP [social phobia] (generalised type) are characterised by a specific attentional bias that favours the processing of social-evaluative threat cues."

Stopa and Clark (1993) carried out a more ecologically valid study of attentional bias in social phobia, but it relied heavily on self-report data. They assessed the attentional focus of social phobics, patients with other anxiety disorders, and normal controls by asking them to speak out loud their thoughts during a previous social interaction. The greatest group differences were found in the percentage of thoughts concerned with negative evaluations of themselves and their own behaviour: social phobics had four times as many thoughts in this category as patients with other anxiety disorders, and six times as many as the normal controls. What was also of interest is that all three groups had comparably low percentages of their thoughts devoted to possible negative evaluation by the person with whom they had interacted. Thus, social phobics are far more likely to think, "My behaviour is inept", than to think, "The other person regards my behaviour as inept."

Evidence that those who are socially anxious may actually avoid certain kinds of social-threat stimuli was discussed by Clark and Wells (1995). The dot-probe task was used with pictures of social objects (faces) and non-social objects (furniture and other everyday objects). The key finding was that individuals who were high in social anxiety (but not those low in social anxiety) showed attentional bias away from the social stimuli.

Those theorists who have assumed the existence of an attentional bias in social phobics have also generally assumed that this bias increases the level of anxiety experienced by such patients. One of the very few studies to address this issue was reported by Woody (1996). She manipulated patients' level of self-attention or self-focus by arranging for social phobics to stand passively in front of an audience while a confederate of the experimenter described either the behavioural and physiological symptoms of the patient (self-focus condition) or of the speaker (other-focus condition). The social phobics attended more to their own behaviour and physiological symptoms in the self-focus condition than in the other-focus condition, and, as predicted, self-reported and rated behavioural anxiety were higher in the self-focus condition.

In sum, most of the research on selective attentional bias has not been sufficiently focused. There is really not much point in simply establishing that social phobics pay disproportionate attention to social-threat stimuli of a general kind. What is needed is an analysis of the specific kinds of socially threatening stimuli for which social phobics have a selective attentional bias, and this should preferably be done in fairly naturalistic conditions. Thus, the study by Stopa and Clark (1993) serves as a model for future research.

### **Interpretive bias**

According to Eysenck (1997), probably the most important cognitive bias exhibited by social phobics is an interpretive bias for their own behaviour, in which that behaviour is regarded as more anxious and less socially adequate than is actually the case. In order to test this hypothesis, social phobics' appraisal of their own behaviour needs to be compared against the (presumably more objective) appraisal of independent judges. This approach was first taken by Rapee and Lim (1992). They obtained self-ratings and observer ratings of the public-speaking performance of social phobics and normal controls. The normal controls rated their own performance as somewhat worse than did the judges, whereas social phobics appraised their own performance as considerably worse than it appeared to the judges. In other words, social phobics showed a much greater interpretive bias than did normal controls.

Stopa and Clark (1993) replicated and extended the findings of Rapee and Lim (1992) in a study in which the participants and observers indicated the extent to which the participants exhibited a number of positive and negative forms of behaviour. As predicted, the social phobics revealed an interpretive bias by regarding their own behaviour as more negative and less positive than did an observer. This interpretive bias was not found in patients with other anxiety disorders. These patients agreed with an observer in terms of their own positive behaviour, and they perceived their behaviour to be less negative than it seemed to an observer.

Evidence in line with the findings of Rapee and Lim (1992) and Stopa and Clark (1993) was reported by Alden and Wallace (1995). They obtained ratings of the non-verbal behaviour of social phobics and of

normal controls in a social situation from the participants themselves and from observers. Both groups rated their own behaviour more negatively than did the observers, but this interpretive bias was significantly greater in social phobics than it was in normal controls.

Amin, Foa, and Coles (1998) investigated interpretive bias in social phobics, patients with obsessive-compulsive disorder, and normal controls. They were presented with ambiguous scenarios, most of which involved direct social interactions. These scenarios were presented in self-relevant or other-relevant versions. The social phobics were much more likely than the other two groups to interpret the self-relevant social scenarios in a negative fashion. However, the three groups did not differ in the likelihood of a negative interpretation of self-relevant non-social scenarios or other-relevant scenarios of either type. These findings are in line with theoretical expectation. However, they suffer from the limitation that it is not clear whether the differences between social phobics and the other groups occurred because the social phobics were unrealistically negative or because the other groups were unrealistically positive in their interpretations.

#### **Maintenance of interpretive bias**

An important issue, but one that has not received as much attention as it deserves, is to explain why social phobics maintain an interpretive bias for the adequacy of own social behaviour over long periods of time, sometimes extending to decades. It would seem commonsensical to assume that their experiences in numerous social situations would lead them to realise the inaccurate nature of their perception of their own social performance. Likely reasons for the persistence of this interpretive bias in social phobics are discussed below.

One major reason why social phobics maintain their interpretive bias for their own behaviour is because they make use of a range of safety-seeking behaviours which are designed to reduce the anxiety experienced in social situations. Clark and Wells (1995) listed some of the safety-seeking behaviours used by social phobics, including avoiding eye contact, talking very little, ignoring other people, and avoiding talking about themselves. The effect of many of these safety-seeking behaviours is that social phobics obtain much less feedback from other people in social situations than is the case with normal individuals. This relative absence of feedback permits the interpretive bias to remain in place.

If social phobics do not make much use of feedback from other people when evaluating the adequacy of their social performance and deciding how anxious they appear, what information do they use? According to Clark and Wells (1995), social phobics focus attention on their internal physiological state, and mistakenly assume that this directly reflects how anxious they appear to other people. This hypothesis was tested by Mansell and Clark (1999). Participants high and low in social anxiety gave a speech and then provided information about the degree to which they noticed their own bodily sensations during the speech and gave a rating of how they had appeared. There was also a judge's rating of how they appeared. The key findings were that perception of bodily sensations correlated  $+0.71$  with self-ratings of how anxious they appeared among those high in social anxiety, whereas the correlation was a non-significant  $+0.12$  for those low in social anxiety. In other words, participants high in social anxiety seemed to rely much more than those low in social anxiety on perception of their internal state when de-

cluding how anxious they appeared. An additional finding was that the judge's ratings of how anxious the participants high in social anxiety appeared to be did not correlate significantly with the participants' perception of their own bodily sensations. This indicates that the highly social anxious were wrong to assume that how anxious their behaviour appeared was strongly associated with their awareness of their bodily sensations.

### Memory bias

The notion that patients with social phobia might have a memory bias favouring the retention of threat-related material has been tested in several studies. The focus in most of the studies was on explicit memory, which involves conscious recollection of information presented previously. However, a few attempts have been to investigate memory bias in implicit memory, with memory performance being assessed in ways that do not depend on conscious recollection.

Rapee, McCallum, Melville, Ravenscraft, and Rodney (1994) reported a set of four experiments on this issue. In their first experiment, social phobics showed no memory bias for social and physical threat words on tests of free recall and recognition memory. In their second experiment, Rapee et al. (1994) made use of a test of explicit memory (cued recall) and a test of implicit memory (word completion). There was no memory bias for social phobics with either type of memory test. There was a lack of evidence for memory bias in social phobics in Rapee et al.'s (1994) final two experiments, leading them to the following conclusion: "The four studies consistently failed to demonstrate a memory bias for social threat information in social phobics. This was the case whether memo-

ry was assessed using direct [explicit] tasks or an indirect [implicit] task, and whether the information was presented in the form of individual words, in a hypothetical context, or in the form of real-life experiences" (p. 98).

Cloitre, Cancienne, Heimberg, Holt, and Liebowitz (1995) studied memory bias for social threat words in social phobics using tests of free recall and high-speed recognition. As with the Rapee et al. (1994) studies, they obtained no evidence of memory bias in social phobics. More negative findings were reported by Lundh and Ost (1997). Patients with social phobia did not exhibit significant memory bias for social or physical threat words tested by means of cued recall or an implicit memory test. Finally, Becker, Roth, Andrich, and Margraf (1999) also failed to obtain a memory bias in social phobics on free recall, even when the patients were presented with speech-phobia-related words (e. g., embarrassment; watched).

These non-significant findings are (or appear to be) inconsistent with various prominent theories. For example, consider Beck's schema-based theory of the anxiety disorders. As was discussed earlier, Beck and Clark (1988) argued that anxious patients have schemas involving exaggerated psychological threat and personal vulnerability. Differences among the various anxiety disorders can be accounted for by assuming that there are specific schemas for each anxiety disorder. Thus, for example, social phobics may have schemas relating to feared catastrophic outcomes of threatening social situations. The key point is that these schemas are supposed to influence and bias processes at all levels within the information-processing system, up to and including retrieval processes. As a result, it is puzzling that social phobics do

not typically show a memory bias for social-threat information.

Mansell and Clark (1999) argued that the several failures to obtain evidence of a memory bias in social phobics occurred because neither the material nor the situation that were used were optimal for obtaining such a bias. According to them, social phobics and other socially anxious individuals are most likely to retrieve selectively and to focus on negative public self-referent information (i.e., information about the ways in which they are viewed by others). Selective retrieval of such information likely to occur when social phobics or other socially anxious individuals are in an anxious state at the time of retrieval. This can be achieved by using instructions that lead the participants to anticipate being involved shortly in a social event (e.g., giving a speech).

Mansell and Clark (1999) obtained partial support for their predictions. They presented positive and negative trait words under public self-referent, private self-referent, and other-referent conditions. The major findings so far as memory bias is concerned were as follows: "When anticipating giving a speech, the high social anxiety group recalled significantly less positive public self-referent encoded words than the low social anxiety groups and tended, non-significantly, to recall more negative public self-referent encoded words" (Mansell & Clark, 1999, p. 430).

In sum, it seems that social phobics may show a memory bias for certain kinds of socially threatening information when they are made anxious by the situation. Such a memory bias may increase the level of anxiety that social phobics naturally experience in anticipation of any social event that appears threatening. However, it is not clear that memory bias forms an important part of the problems experienced by social

phobics, and it is also not clear that attempts to eliminate this bias should be the focus of therapeutic interventions in cognitive-behaviour therapy.

### **Implications for therapy**

There are numerous elements to the successful treatment of social phobia by means of cognitive or cognitive-behavioural therapy, and here we will consider only a few of the major ones. One of the central goals in therapy is to reduce or eliminate the patient's interpretive bias for his or her own behaviour. This can be approached in part by trying to persuade social phobics to stop using safety behaviours. Safety behaviours not only reduce the amount of feedback about social performance received from others, but also lead to the erroneous belief that feared catastrophes (e.g., being laughed at by everyone) are only avoided through their use.

Wells, Clark, Salkovskis, Ludgate, Hackmann, and Gelder (1995) compared the effectiveness of exposure on its own against that of exposure combined with decreased use of safety behaviours in social phobics. Their findings were as follows: "One session of exposure with decreased safety behaviours and appropriate information-processing rationale was significantly more effective than exposure of equivalent duration with no change in safety behaviours and an extinction rationale" (Wells et al., 1995).

Another way in which social phobics' interpretive bias for their own social behaviour can be reduced is by re-directing their attentional focus away from their internal sensations and towards the reactions of those with whom they are interacting. This was demonstrated among eight social phobics by Wells and Papageorgiou (1998). There were two forms of therapy: exposure on its own and exposure plus external at-

tention focus. External attention focus was encouraged by means of the following instructions: "In order to overcome your anxiety, you have to go into the situation and allow yourself to discover that your fears are not true. To do this, you should observe other people closely in order to gain clues about their reaction to you. For example, when you are self-conscious and it feels as if everyone is looking at you, you should look around and check this out" (Wells & Papageorgiou, 1998, p. 362).

What did Wells and Papageorgiou (1998) find? Exposure plus external attention focus reduced anxiety within a social situation more than did exposure alone, and it also was significantly more effective in reducing belief in feared catastrophes. The patients also completed a general effectiveness measure on a scale running from 0 to 100. The mean rating for exposure plus external attention focus was 92.5, compared to only 37.5 for exposure on its own. These findings provide strong support for the notion that social phobics benefit from deliberate attempts to focus on other people rather than on their own anxious symptoms.

There are other ways in which social phobics' tendency to exaggerate the inadequacies of their social behaviour can be addressed in therapy. For example, Hope, Heimberg, and Bruch (1995) compared the effectiveness of cognitive-behaviour therapy and exposure therapy in treating social phobia. An important part of the cognitive-behaviour therapy involved providing patients with feedback from others on their social performance. Assessment of self-reported social performance and social performance rated by independent judges before and after therapy revealed that interpretive bias for their social performance was eliminated by cognitive-behaviour therapy but not by exposure on its own.

An alternative way of providing useful feedback was suggested by Eysenck (1997) and by Clark and Wells (1995). In essence, videotape or audiotape recordings are obtained while social phobics are in a social situation. Before watching the videotape or listening to the audiotape, social phobics are instructed to predict how they think they will appear. What nearly always happens is that the evidence from the videotape or audiotape indicates that their social performance is superior to their predictions. As a result, this can lead to a substantial reduction in the interpretive bias.

There are two other mistaken beliefs or cognitions that are typically held by social phobics. First, they tend to believe that certain forms of behaviour will be perceived as totally unacceptable by others. Second, social phobics usually interpret failures by others to respond positively to them in an unduly negative way. An example of the first kind of mistaken belief involves a social phobic who believed that spilling a drink would lead other people to think that she was an alcoholic, and would make them stare at her and start whispering among themselves. When she was persuaded to spill her drink deliberately, she was astonished to find that practically no-one seemed to show any interest at all.

The mistaken belief among social phobics that failures of others to behave positively towards them provide strong evidence that others dislike them is harder to alter. Part of the problem is that most social situations provide somewhat ambiguous evidence about the actual perceptions and feelings of other people. Appropriate cognitive-behaviour therapy is based in part on convincing social phobics that there are numerous reasons why someone might not act in a friendly way towards them. For example, they might be in a bad mood because of something that has just happened

to them, they might be thinking about other issues rather than the ongoing social interaction, and so on. It is also important for therapists to emphasise to social phobics that, even if some other people do not like them, this does not mean that the social phobics are inadequate and dislikeable individuals.

How does the effectiveness of cognitive-behaviour therapy compare against that of other forms of therapy? Much of the evidence is not especially encouraging. For example, Feske and Chambless (1995, p. 712) performed a meta-analysis of 15 studies in which cognitive-behaviour and exposure therapy were compared: "The re-

sults of this meta-analysis indicate that exposure with and without cognitive modifications are equally effective in the treatment of social phobia. In none of the comparisons did the effects of CBT (exposure with cognitive modification) tend to exceed those of exposure alone." However, recent developments in cognitive-behaviour therapy (e.g., those introduced by Wells et al., 1995, and by Wells and Papageorgiou, 1998) make it highly probable that cognitive-behaviour therapy based on changing cognitive biases has now become more effective than any other form of therapy for social phobia.

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