



A COGNITIVE-BEHAVIORAL MODEL OF ANXIETY IN SOCIAL PHOBIA

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Summary—The current paper presents a model of the experience of anxiety in social/evaluative situations in people with social phobia. The model describes the manner in which people with social phobia perceive and process information related to potential evaluation and the way in which these processes differ between people high and low in social anxiety. It is argued that distortions and biases in the processing of social/evaluative information lead to heightened anxiety in social situations and, in turn, help to maintain social phobia. Potential etiological factors as well as treatment implications are also discussed. © 1997 Elsevier Science Ltd

INTRODUCTION

Social phobia refers to persistent fears of situations involving social interaction or social performance or situations in which there is the potential for scrutiny by others (American Psychiatric Association, 1994). More than 13% of the population meet diagnostic criteria for social phobia at some point in their lives (Kessler *et al.*, 1994). Life interference and impairment associated with social phobia may be severe (Rapee, 1995; Schneier *et al.*, 1994) and, in addition, many people report interference from related problems such as performance anxiety or test anxiety (Beidel & Turner, 1988). People with social phobia typically report high rates of depression (Schneier, Johnson, Hornig, Liebowitz & Weissman, 1992; Stein, Tancer, Gelernter, Vittone & Uhde, 1990) and substance abuse (Kushner, Sher & Beitman, 1990; Schneier, Johnson, Hornig, Liebowitz & Weissman, 1992), and markedly restricted socialisation (Dodge, Heimberg, Nyman & O'Brien, 1987; Turner, Beidel, Dancu & Keys, 1986a) and career functioning (Phillips & Bruch, 1988; Turner *et al.*, 1986a). Yet, social phobia has been slower than other anxiety disorders to capture the attention of psychopathology researchers and funding bodies. One possible reason may be that social phobia is sometimes difficult to conceptualize as a form of psychopathology, given that up to 40% of the general population describe themselves as 'shy' (Zimbardo, Pilkonis & Norwood, 1974). This is also reflected in the fact that social phobia was not an officially defined nosological category until the publication of the DSM-III (American Psychiatric Association, 1980) and only a decade ago, social phobia was described as the 'neglected' anxiety disorder (Liebowitz, Gorman, Fyer & Klein, 1985). Nevertheless, over the past several years, research into the nature and treatment of social phobia has increased dramatically. In addition, a wealth of research exists on shyness and related concepts (e.g. communication apprehension) in the counselling and social psychology literatures. At this stage of the research, a synthesizing model may be of tremendous heuristic value. The model of social phobia described in this paper extends earlier models (e.g. Carver & Scheier, 1988; Schlenker & Leary, 1982) and owes much to similar current thinking (Clark & Wells, 1995).

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PRELIMINARY ASSUMPTIONS

In the development of a model of any form of psychopathology, some fundamental assumptions must be made and, ideally, should be clearly spelled out.

The first assumption of the present model concerns the relationship of social phobia to shyness and avoidant personality disorder. Much has been written about these issues (Brown, Heimberg & Juster, 1995; Bruch & Cheek, 1995; Heimberg, 1996; Rapee, 1995; Turner, Beidel & Townsley, 1990), and we will not review the arguments here. However, in developing the current model, we take the position that social phobia and avoidant personality disorder are not independent 'disease entities' or qualitatively distinct disorders, but rather that there exists a continuum from low to extreme degrees of concern over social evaluation. In that context, 'shyness' describes the low to middle range of the continuum, 'social phobia' describes the middle to upper end of the continuum, and 'avoidant personality disorder' describes the upper to extreme end of the continuum. In fact, the terms overlap considerably and distinguishing between them may be a somewhat arbitrary exercise (Holt, Heimberg & Hope, 1992). In this paper, we refer to 'social phobia' and the descriptors of the model will be aimed at people in the higher range of the continuum. However, it should be understood that, like the disorder, the processing features described in the model exist on a continuum and that the model could, therefore, be applied to the entire range.

A similar assumption refers to the issue of subtypes of social phobia. The DSM-IV divides social phobia into two more-or-less distinct subtypes. The generalized type refers to individuals whose fears are evident in most social situations while a more restricted subtype (referred to as 'non-generalized' in DSM-IV, but often described as 'limited', 'specific', or 'circumscribed' in the literature) has been described to identify those individuals who fear a lesser number of social situations or who demonstrate specific fears of performing in front of other people (e.g. public speaking). Whether these subtypes differ quantitatively or qualitatively has also been the subject of considerable debate (Heimberg, Holt, Schneier, Spitzer & Leibowitz, 1993; Rapee, 1995). However, even those who argue for a qualitative difference would agree that the basic nature of the subtypes is essentially similar. Thus, in the present discussion, we assert that the similarities far outweigh the differences and that the model, as described, can be applied equally to both subtypes of social phobia. Any qualitative distinctions which may be identified through future research may serve to elaborate the model at a later point.

Finally, we have chosen to focus our model on the anxiety experienced by an individual in a socially threatening situation. We believe that this is an easier way to conceptualize the pathology in social phobia. As a result, the basic model can really be used to illustrate what occurs to any individual when he/she becomes anxious in a social situation. However, in the text, we have tried to point to those aspects that we believe differentiate people high in trait social anxiety (e.g. those with social phobia).

THE MODEL

A diagram of the model of anxiety in social evaluative situations is presented in Fig. 1. We begin with the notion that people with social phobia assume that other people are inherently critical, i.e. likely to evaluate them negatively (Leary, Kowalski & Campbell, 1988). Furthermore, they attach fundamental importance to being positively appraised by others. Within this framework, several processes may occur to generate and maintain social anxiety. These processes are essentially similar regardless of whether a social/evaluative situation is actually encountered, is anticipated, or is retrospectively digested (brooded over).

On encountering a social situation, an individual forms a mental representation of his/her external appearance and behavior as presumably seen by the audience and simultaneously focuses his/her attentional resources onto both this internal representation and onto any perceived threat in the social environment. The mental representation of appearance and behavior is not actually an homunculus, but is a loosely integrated amalgam based on a variety of inputs. These inputs include information retrieved from long-term memory (e.g. recollection of general appearance, prior experience in the situation, etc.), internal cues (e.g. proprioception, physical

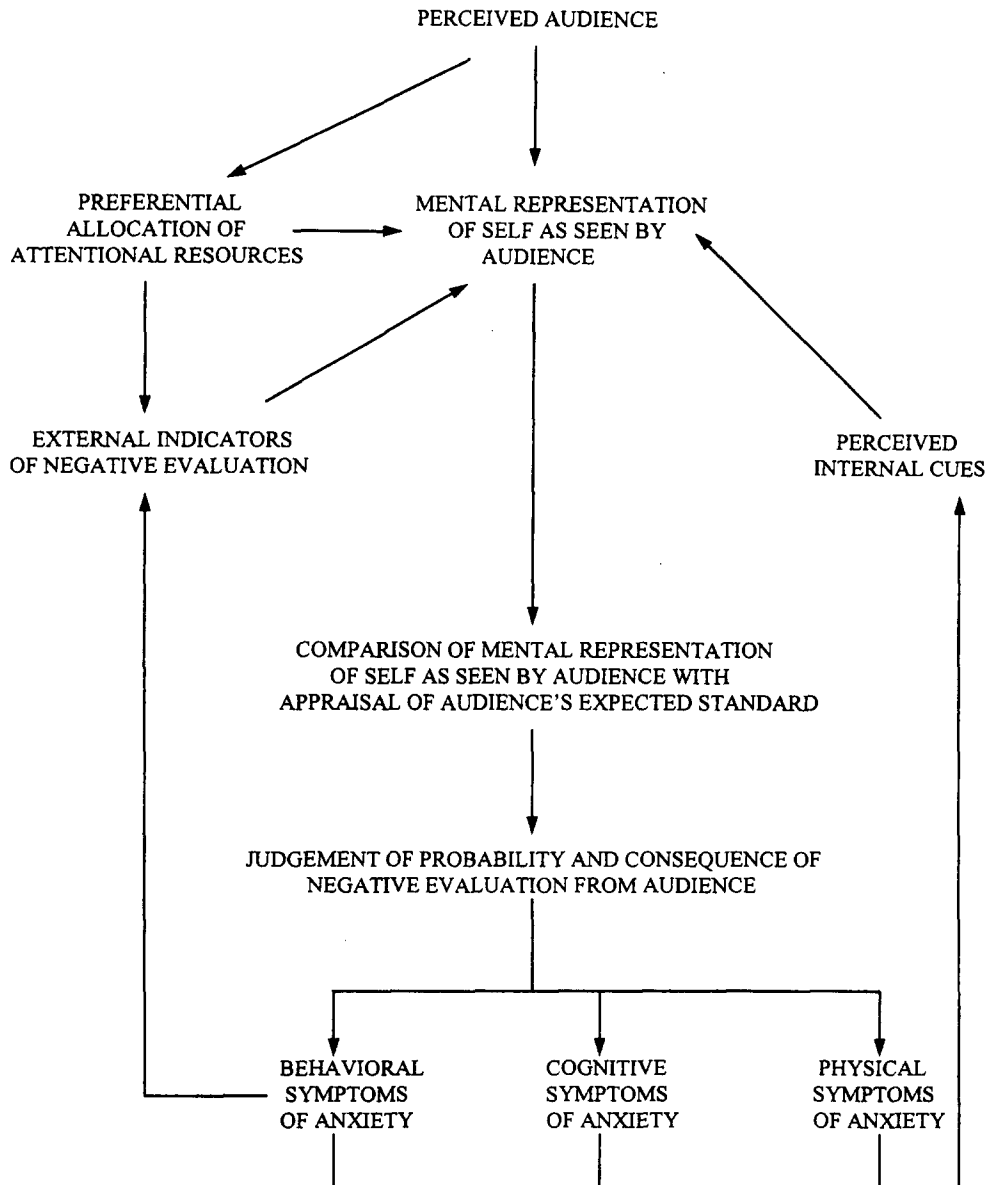


Fig. 1. A model of the generation and maintenance of anxiety in social/evaluative situations.

symptoms), and external cues (e.g. audience feedback). Attentional resources are allocated to the salient aspects of the self image (generally those features which are relevant to the situation and potentially negative) and also to monitoring of potential external threat. In the case of social phobia, potential external threat refers to indicators of possible negative evaluation such as frowns, signs of boredom, etc. In addition to allocation of attentional resources to these external threats and the mental representation of one's appearance and behavior, the individual simultaneously formulates a prediction of the performance standard or norm which he/she expects the audience to utilise in the given situation. The representation of how the audience is expected to view the individual and the appraisal of the audience's presumed situational standards are compared to provide an estimate of the audience's perception of the individual's current performance (and, by extension, of the individual himself/herself). That is, a determination is made of whether the individual is performing in a manner which meets the specific presumed standard of a given audience in a given situation. The discrepancy between the person's perception of the audience's appraisal of his/her performance (appearance and/or behavior) and the

person's perception of the audience's standard for the evaluation of his/her appearance and/or behavior, determines the perceived likelihood of negative evaluation from the audience and consideration of the social consequences of the expected negative evaluation. The predicted negative evaluation further elicits anxiety which has physiological, cognitive, and behavioral components which subsequently influence the individual's mental representation of his/her appearance and/or behavior as seen by the audience, and the cycle is renewed. The various components of the model will now be described in detail.

THE CONCEPT OF AUDIENCE

Anxiety is typically conceptualized as a response to perceived threat (Beck & Emery, 1985). In social/evaluative situations, the primary threat stimulus is an audience and the primary threatening outcome is negative evaluation from the audience*. It should be noted that the term 'audience' is not only used in its typical sense to denote a group of intentional observers, but rather refers to any other person or group of people who may potentially perceive an individual's appearance or behavior (including verbal utterances). A social-evaluative situation is any situation where such an audience exists. Thus, an actual interaction with the audience need not necessarily occur for anxiety to be generated. For example, many social phobics report an increase in anxiety simply walking down the street and describe concerns that people are watching and evaluating them. Similarly, anxiety may increase when a social phobic enters a room where another person is sitting, even if that person does not acknowledge his or her presence. Nevertheless, these are considered to be social situations because there exists the potential for interaction or observation and hence the potential for negative evaluation by the audience.

MENTAL REPRESENTATION OF THE SELF AS SEEN BY THE AUDIENCE

People regularly monitor various aspects of their external appearance and behavior. This can include monitoring of facial expressions, posture, actions, and so on and even monitoring of internal feelings that may manifest in outward appearance (e.g. hot feelings resulting in sweating). We propose that input from such monitoring is combined with other data into a mental representation of one's external appearance and behavior. Importantly, this mental representation is not likely to be an objective record of one's appearance (some sort of 'internal photograph'), but rather a distorted image, depending on the predominant input, the individual's weighting of that input, and a variety of other factors. Further, it is not a representation of how one actually views oneself, but is based on how the individual believes the audience views him or her at any given moment.

The specific inputs that influence the mental representation require empirical investigation. However, a number of sources seem likely. First, the individual probably has a pre-existing image, stored in long-term memory and based on feedback from others, actual images of the self (e.g. from mirrors, photographs, etc.), and prior experiences in a given situation. This information in long-term memory would provide the 'baseline image' in the absence of other input. Moment-to-moment modifications of the mental representation would then be derived from both internal and external cues. For example, internally, proprioceptive information will provide data about actions, posture, and facial expression. Information from the autonomic nervous system will indicate potentially visible aspects of arousal such as blushing, sweating, and so on. External feedback would come primarily in the form of verbal and nonverbal signals from the audience. Importantly, such social feedback is often indirect and ambiguous, lending itself easily to distortion. Given the suggestion that attentional resource allocation in social phobics is generally primed toward negative evaluative information (see below), the processing of external feedback by social phobics will frequently have a negative bias.

*One can also frequently uncover more 'underlying', idiosyncratic consequences such as lack of support or abandonment.

As an example, imagine an individual who enters a room where several people are seated. Upon first entering, he/she activates a mental representation of how he/she is seen by the people in the room which is primarily composed of the baseline record (i.e. from long-term memory stores). This representation would include data about his/her typical appearance combined with more recent information (e.g. he/she may not have had time to get a haircut recently or he/she may have gained weight). In addition, on a moment-to-moment basis, the mental representation of how he/she is seen by the others in the room may be calibrated depending on how he/she is feeling or acting (e.g. he/she may notice himself/herself sweating or may not be able to find a chair to sit in) as well as interpreted comments or looks from the others in the room. Thus the mental representation will be in a constant state of flux, depending on the momentary input. In addition, the weighting of the input and the allocation of attentional resources will be biased toward more salient information. For example, if the individual was especially concerned about appearing 'wooden', then any experienced tension or tightness would be excessively weighted in the mental representation.

The mental representation of one's external appearance or behavior is presumably more negative for a person with social phobia than for people who are not socially anxious. This negative view of how others see one's appearance or behavior may be the result of actual deficits (e.g. disfigurement, social skills deficits), distorted perceptions of one's appearance or behavior as seen by others, or both. Importantly, the social phobic individual's view of himself/herself is probably not veridical. Allocation of attentional resources toward stimuli which elicit negative evaluation means that the socially anxious individual will focus on and exaggerate those features of the mental representation of his/her appearance or behavior to others which are most likely (from an idiosyncratic perspective) to elicit criticism or ridicule. Thus, the representation will include exaggerated images of one or more features of the individual: those which he/she finds most salient and threat eliciting.

One of the most important aspects of an individual's behaviour that is portrayed in the mental representation is likely to be his/her social performance. There is growing evidence that, compared to nonclinical Ss, people with social phobia and other highly socially anxious people perceive their own performance in social situations more poorly, even after differences in actual performance are taken into account (Glasgow & Arkowitz, 1975; Rapee & Lim, 1992; Stopa & Clark, 1993). This underestimation appears to be more strongly associated with social anxiety than with related conditions such as depression (Rapee & Lim, 1992) or other anxiety disorders (Stopa & Clark, 1993). Importantly, the tendency to underrate performance is specific to one's own performance, since social phobics have not been found to differ from low anxious people in their appraisals of other people's performance (Rapee & Lim, 1992; Stopa & Clark, 1993). In addition, it appears to be specific to social/evaluative situations and is not found on non-social tasks (Efran & Korn, 1969). One of the interesting findings with respect to social phobics' underestimations of their own performance is that this phenomenon is not intractable. More realistic perceptions of performance have been found following both video feedback of performance (Rapee & Hayman, 1996) and cognitive behavioral therapy for social phobia (Hope, Heimberg & Bruch, 1995).

In addition to inaccurate perceptions of performance, accurate perceptions of 'poor' performance would also provide powerful input to the mental representation indicating an inept appearance to the audience. There is a wealth of evidence to suggest that anxiety is associated with decreased performance on complex cognitive tasks, and it appears that concerns about evaluation are largely responsible for this effect (Eysenck, 1979; Sarason, 1975). Thus, there will be some situations (involving complex cognitive tasks) in which individuals with social phobia actually perform worse than other individuals. For example, there is evidence that individuals high in test anxiety (described as a type of social phobia in DSM-IV) do worse on academic tasks than do individuals low in test anxiety (Seipp, 1991).

Despite these arguments, whether individuals with social phobia actually perform more poorly than others on social interaction tasks is a controversial issue, and empirical evidence has been mixed. Studies comparing socially anxious Ss with low anxious Ss on social performance tasks have variously found that the anxious individuals perform more poorly on both global and specific indices of behavior (Twentyman & McFall, 1975), perform more poorly on global but

not specific indices (Arkowitz, Lichtenstein, McGovern & Hines, 1975; Borkovec, Stone, O'Brien & Kaloupek, 1974), or do not differ (Burgio, Glass & Merluzzi, 1981; Clark & Arkowitz, 1975; Rapee & Lim, 1992). Perhaps more interestingly, some studies have demonstrated worse performance for socially anxious Ss in certain situations but not others (Beidel, Turner & Dancu, 1985; Pilkonis, 1977b). One suggestion is that the degree of structure in a social situation may be an important determining variable. Situations that involve more clearly defined social rules (e.g. a speech) are less likely to produce a difference in social performance between social phobics and others than are situations that involve unclear social structure (e.g. a party).

In addition to perceptions of social performance, there is also evidence that socially anxious Ss overestimate the degree to which their anxiety is visible to others (Alden & Wallace, 1995; Bruch, Gorsky, Collins & Berger, 1989a; Halford & Foddy, 1982; McEwan & Devins, 1983). Given that concern over the visibility of one's anxiety to others is part of the diagnostic definition of social phobia (American Psychiatric Association, 1994), this is an important cognitive bias. To some extent, this inaccurate perception may be mediated by prior experiences represented (accurately or inaccurately) in long term memory. However, a major source of the perceptual bias may involve input from internal sensations (McEwan & Devins, 1983). For example, autonomic arousal in a social situation (such as a feeling of heat) may be depicted in the mental representation as a clearly visible experience (e.g. rivers of sweat). Along similar lines, some research has indicated that shy individuals rate themselves as less physically attractive than do people low in shyness (Montgomery, Haemmerlie & Edwards, 1991) despite the fact that shyness does not correlate with ratings of physical attractiveness made by observers (Jones, Briggs & Smith, 1986). Thus, empirical evidence to date, seems to support the suggestion that people with social phobia have negative mental representations of their appearance and behavior, especially in social situations.

ATTENTIONAL RESOURCE ALLOCATION

There is fairly consistent evidence that anxious individuals preferentially allocate attentional resources to threat (Dalglish & Watts, 1990). Evolutionary models point to the importance of detecting potential threat as early as possible in protection of the organism from harm (Ohman, 1996), and so models of anxiety have predicted that detection of threat and mobilization of attentional resources occur at a very early stage of processing (Ohman, 1996; Williams, Watts, MacLeod & Mathews, 1988). Given that it is an anxiety disorder, this general pattern should also be true of social phobia. Thus, it is predicted that social phobia will be characterized by rapid and extensive allocation of attentional resources to the detection of threat. However, in contrast to other forms of anxiety, we predict that social phobia will also be characterized by an allocation of attentional resources to monitoring of the mental representation of the external self and, in particular, onto those perceived features of the self which may be associated by the person with an increased risk of negative evaluation. Thus, the individual with social phobia is frequently caught in the equivalent of a 'multiple-task paradigm' in which he/she must closely monitor potential external threat and simultaneously monitor the potentially threat-eliciting aspects of her/his supposed external appearance or behavior, as well as reserving some attentional resources for the proper completion of the task at hand. As a result, social phobics' performance on tasks which require extensive processing resources should be poor, especially in situations where threat potential is high. Each aspect of attention will be discussed below.

As discussed earlier, social threat takes the form of potential negative evaluation from others. Thus, individuals with social phobia will scan the environment for any signs of impending negative evaluation, will detect such signs rapidly, and will have difficulty disengaging attention from them. Along similar lines, several authors have pointed to the evolutionary significance of social fears (Ohman, 1986), and some comprehensive ethological models of social phobia have been developed (Cloitre & Shear, 1995; Mineka & Zinbarg, 1995; Trower & Gilbert, 1989). According to these models, social phobia in humans is directly related to agonistic, conspecific threat interactions in animals. The purpose of the anxiety is to avoid unnecessary challenge of

the dominant group member while submissive behaviors allow the subordinate to remain in the safety of the group (Trower & Gilbert, 1989). Propensity to social anxiety is, therefore, a phylogenetically evolved phenomenon in which the individual is continually primed to detect threat from a dominant conspecific and to respond with submission. As part of this constant readiness, pre-attentive priming mechanisms are important for the rapid detection of threat (Ohman, 1996).

Several empirical methods have provided support for the suggestion that social phobics allocate considerable attentional resources to the detection of negative evaluative threat. The most widely used method has been the modified Stroop task in which negative evaluation words (e.g. 'stupid') and matched neutral words have been presented in various colors. The S's task is to ignore the meaning of the word and name the color in which the word is printed as rapidly and accurately as possible. Studies have consistently demonstrated that social phobics take significantly longer to color-name negative evaluation words than neutral or physical threat words (Holle, Heimberg & Neely, in press; Hope, Rapee, Heimberg & Dombek, 1990b; Mattia, Heimberg & Hope, 1993; McNeil, Ries, Taylor, Boone, Carter, Turk & Lewin, 1995). While the Stroop effects may be produced by a variety of factors, these results are commonly interpreted to indicate that the attentional resources of people with social phobia are more strongly attracted by negative evaluation information (Hope *et al.*, 1990b). Similar conclusions have been drawn in a recent study in which people with generalized social phobia were shown to allocate more attention to the area on a computer screen occupied by a negative evaluation word than to the area occupied by a neutral word (Asmundson & Stein, 1994). From a different direction, at least one study has suggested that socially anxious Ss attend less to non-evaluative information about potential interaction partners than do non-anxious Ss (Heimberg, Acerra & Holstein, 1985).

In addition to monitoring potential external threat, social phobics will also pay attention to the mental representation of their external appearance or behavior as presumably seen by the audience. In most cases, however, this mental representation remains below awareness. On entering (or anticipating) a social situation, attentional resources are allocated to it and some degree of one's perceived external appearance moves into consciousness. It is predicted that this effect will be more extensive in people with social phobia. Thus, they should perform more poorly on complex cognitive tasks because less attentional resources are available for task performance*, and they should also be more anxious if their appraisal of how others are seeing them is poor (most often the case). Therefore, we would predict that in situations when the mental representation of how one is being perceived by others is worse than 'reality', then increasing attentional focus to this internal representation will increase anxiety, whereas increasing attention to an objective external representation will reduce anxiety. In other words, when objective, external feedback which is less negative than the internal representation is provided (e.g. via video feedback), anxiety is reduced (Rapee & Hayman, 1996).

Additional evidence comes from studies which have asked Ss to report on the central focus of their attention while engaging in social interaction. The amount of time reportedly spent focusing on the self has been found to positively relate to the degree of social anxiety (Hope, Heimberg & Klein, 1990a; Melchior & Cheek, 1990). In addition, in the study by Hope *et al.* (1990a), the self-report of self-focused attention was supported by the finding that socially anxious Ss recalled less information about their partner.

From a trait perspective, several studies have demonstrated a positive association between public self consciousness (Buss, 1980) and trait social anxiety (Bruch *et al.*, 1989a; Fenigstein, Scheier & Buss, 1975; Hope & Heimberg, 1988; Pilkonis, 1977a). Similarly, individuals with social phobia have been found to score higher on a measure of public self consciousness than nonclinical Ss and individuals with other anxiety disorders (Bruch & Heimberg, 1994; Bruch, Heimberg, Berger & Collins, 1989b; Pilkonis, 1977a), and this difference has not been found on a measure of private self consciousness (a tendency to focus directly on internal features) (Hope & Heimberg, 1988).

*However, in some cases, owing to their strong desire to portray a positive image, individuals with social phobia will be able to compensate for the redirection of attentional resources via increased motivation (see Eysenck, 1979).

The precise link between public self consciousness and the current model is difficult to define, largely owing to several problems with the construct of public self consciousness (Makris & Heimberg, 1995). Whereas public self-consciousness has been referred to as a focus onto the self (implying attentional resources allocated to monitoring one's actual external features), the current model emphasises the importance of a focus toward an internal representation of how one is viewed by one's audience (which may or may not be accurate). Therefore, a major difference between the theories is that while self consciousness theory might predict that social phobics would be more accurate than others at determining their appearance, the current model predicts that, under most conditions, they will be less accurate.

COMPARISON OF THE AUDIENCE'S PERCEIVED APPRAISAL WITH THE EXPECTED AUDIENCE STANDARD

In addition to monitoring how she or he appears to others, the individual with social phobia will also make predictions about the type and standard of performance which is expected of her/him by the audience. This prediction will take into account both audience characteristics and situational features. For example, socially anxious people report experiencing greater anxiety in formal situations and opposite sex interactions (Dodge *et al.*, 1987; Turner *et al.*, 1986a). Similarly, it is commonly found that the size and perceived importance of the audience influence the degree of anxiety (Latane, 1981). In terms of the current model, these situational variations in anxiety are argued to occur owing to variations in the performance standard which the individual predicts that the audience holds for him/her. In other words, one may predict that more important people will expect better performance than will less important people or that better performance will be expected by an audience in a formal situation. To a large extent, this will be an idiosyncratic judgement, but there are also likely to be many societally shared expectations. Some degree of indirect support for this suggestion is found in a demonstration that the degree of anxiety in a social interaction is partly mediated by the *S*'s perceptions of the positive attributes of his/her interaction partner (Mahone, Bruch & Heimberg, 1993). In order to control the occurrence of threat (negative evaluation), the individual must be able to perform in a way that leads to the achievement of the desired goal (i.e. 'adequate' performance for a given situation). Thus, at this stage of the appraisal process, the individual compares his/her mental representation of the performance/appearance which the audience is seeing with his/her prediction of the audience's expected performance/appearance. The greater the shortfall in performance relative to expectation, the greater the anxiety (cf. Schlenker & Leary, 1982; Wallace & Alden, 1991). As described earlier, the mental representation of how one is being seen by the audience is updated as an ongoing process in which the individual continually receives input from a variety of systems. In similar fashion, the predicted standards held by the audience in a situation may change from moment to moment based on changing perceptions of the audience and the demands of the situation. Thus, the discrepancy between these estimates will not necessarily be static. This may explain the commonly described fluctuations of anxiety in social situations. For example, for socially anxious *Ss*, positive feedback from an audience may raise the standard which the *S* believes that the audience holds for him/her for subsequent performances, presumably increasing experienced anxiety (Wallace & Alden, 1995).

Whether individuals with social phobia assume that others hold higher standards for them than do non-phobic individuals is another complex question. While this is not a necessary prediction of the model, such a finding would certainly be in keeping with it. The crucial aspect, according to the current model (and others e.g. Schlenker & Leary, 1982), is the degree of discrepancy between the presumed appearance or behavior as perceived by the audience and the audience's assumed standards for evaluating this appearance/behavior. Because people with social phobia believe that others perceive them negatively, this is sufficient to explain the greater anxiety in social situations for individuals with social phobia compared to non-phobics. However, if individuals with social phobia were also to believe that the audience expected a higher standard, then this would produce an even greater discrepancy and hence increase anxiety. The evidence from some studies using self-report measures is that social phobic and

non-phobic individuals do not differ significantly in the predictions of the performance standard expected by an audience (Alden, Bieling & Wallace, 1994; Wallace & Alden, 1991, 1995). However, Wallace and Alden (1991, 1995) have found that the standard that individuals with social phobia believe that the audience (experimenter) holds for them is higher than that which these Ss hold for themselves. It is possible that individuals with social phobia will be shown to appraise an audience's standards for their behavior to be higher than that appraised by non-phobics under certain conditions.

APPRAISAL OF LIKELIHOOD AND CONSEQUENCES OF NEGATIVE EVALUATION

People with social phobia have consistently been found to score higher on questionnaire measures of fear of negative evaluation than have people with other forms of psychopathology, other anxiety disorders, or no mental disorder (Heimberg, Hope, Rapee & Bruch, 1988). In addition, measures of fear of negative evaluation have been found to correlate strongly with measures of social anxiety and avoidance of social situations (Jones, Briggs & Smith, 1986; Watson & Friend, 1969). Similarly, one study which involved in-vivo exposure to social situations in both high and low socially anxious Ss found that the only significant discriminator between these groups in their response to the situations was the fear of negative social evaluation (Asendorpf, 1987). Finally, changes in fear of negative evaluation have been found to be a significant predictor of response to the cognitive-behavioral treatment of social phobia (Mattick & Peters, 1988; Mattick, Peters & Clarke, 1989). Thus, concern over negative evaluation appears to be an important aspect of social phobia. In agreement with the current model, several authors have argued that this construct is central to conceptualisations of social phobia (e.g. Butler, 1985; Turner, Beidel & Townsley, 1992).

The individual with social phobia will have a characteristic tendency to estimate the likelihood and consequences of negative evaluation more highly than does a low socially anxious person. This estimate would largely be based on the preceding stages of the model, but would also involve a degree of response bias, that is, a consistent tendency to assume that negative evaluation is likely in any social situation. (Leary, Kowalski & Campbell, 1988; Winton, Clark & Edelman, 1995).

There has been surprisingly little empirical investigation of estimates of the likelihood and consequences of negative evaluation in socially anxious Ss. Nevertheless, a few studies have demonstrated that socially anxious individuals report a greater expectancy for negative occurrences and a greater cost to these occurrences for themselves than do low anxious Ss (Foa, Franklin, Perry & Herbert, 1996; Lucock & Salkovskis, 1988; Poulton & Andrews, 1994; Teglasi & Fagin, 1984). Further, in the study by Foa *et al.* (1996), change in the estimate of the cost of negative events was a better predictor of treatment outcome than was change in the estimate of the likelihood of such events.

ANXIETY

According to the model, an anxious state will be experienced to the extent that negative evaluation is seen as likely and is seen to have potentially serious consequences. In other words, the greater the predicted probability and consequences of negative evaluation, the greater the anxiety in the situation. As the prior stages of the model fluctuate for various reasons (e.g. audience feedback), so too will the expectation of negative evaluation and, in turn, the level of state anxiety. Some support for this prediction has been provided in a recent study by Poulton and Andrews (1994). Individuals with social phobia and non-phobic Ss were asked to appraise the probability and cost of negative evaluation before, during, and following a speech. On a group level, ratings of state anxiety were closely related to combined probability/cost estimates.

Anxiety is comprised of cognitive, behavioral, and physiological components. Indeed, somatic (often visible) symptoms, negative thoughts, and subtle avoidance behaviors frequently occur in response to anticipated negative evaluation. Further, socially anxious individuals will respond to

social/evaluative situations with higher levels of physiological responding, more negative thoughts, and more avoidance behaviors than low anxious individuals (Beidel *et al.*, 1985; Turner, Beidel & Larkin, 1986b). According to the model, these components or consequences of anxiety, in particular somatic symptoms and avoidance behaviors, can feed back to earlier stages of the model and provide further influential input as described below.

The somatic symptoms which distinguish people with social phobia from people with other anxiety disorders tend to be those which are visible to others such as blushing, twitching, sweating, and stammering (Amies, Gelder & Shaw, 1983; Solyom, Ledwidge & Solyom, 1986). In addition, people with social phobia also experience the full range of symptoms typically associated with anxiety (Reich, Noyes & Yates, 1988). In turn, perception of these symptoms is likely to affect the individual's mental representation of how he/she appears to the audience. According to the model, the mental representation is dominated by those personal features felt to be especially salient with respect to potential negative evaluation. Thus, the feedback of somatic symptoms will be modulated along these lines. In other words, the individual with social phobia will over-represent those symptoms which are believed to have potential for negative evaluation (e.g. sweating). Some of these effects will be based on distorted perceptions, perhaps owing to externalisations of internal symptoms (e.g. believing others can 'see' your heart pounding). However, some will also be based on reality since it is likely that socially anxious people do visibly show signs of anxiety (e.g. blushing, shaking, sweating).

In addition to the influence of somatic symptoms, the anxious individual in a social/evaluative situation is likely to engage in a variety of subtle behaviors aimed at avoiding potential negative evaluation (Beidel *et al.*, 1985; Rapee, 1995; Wells, Clark, Salkovskis, Ludgate, Hackmann & Gelder, 1995). It is important to note here that we are not referring to the obvious avoidance of not even entering the situation, but to more subtle behaviors aimed at reducing the potential for social interaction within a situation. These may include such behaviors as avoiding eye contact, reducing verbal output or voice tone, and standing on the periphery of a group. Unfortunately, these behaviors often have the effect of reducing effective social performance and in this way, can facilitate a self-fulfilling prophecy. As a result, the social phobic receives further feedback, both from his/her own monitoring of behavior and from the audience's verbal and nonverbal responses, that performance is inferior.

As described earlier, the mental representation of one's performance is not assumed to mirror reality, but is more likely a distorted description wherein the more salient aspects of the self are represented. For the social phobic, these will be aspects relevant to negative evaluation. As a result, situational shifts in social anxiety are predicted to be different in individuals with social phobia than in non-phobic individuals. When negative information is received from the audience, it will have greater weight for the individual with social phobia (since it will be more consistent with their existing mental representation) and, as such, it will produce a greater increase in anxiety. In contrast, positive information will hold less weight for the individual with social phobia and will produce less of a shift in anxiety.

There is considerable evidence (discussed above) that the social performance of people with social phobia is worse than that of nonclinical Ss. However, this is not a consistent finding, and several studies have failed to find differences between socially anxious and nonanxious groups on social performance in particular situations. According to the present model, a lack of social skills is not a fundamental or invariant characteristic of individuals with social phobia. Instead, deficits in social performance are expected to occur under many circumstances as a 'result' of anxiety, sometimes owing to cognitive capacity limitations and frequently reflecting subtle avoidance behaviors. Therefore, it is not unexpected that social performance will be highly variable across situations since it will depend on the degree of anxiety elicited by the situation and also by the degree of structure inherent in the situation (Pilkonis, 1977b). Nevertheless, the model does allow for an individual to be deficient in social skills and we acknowledge the possibility that where an individual has been chronically avoidant over a long period of time, skill development may well have been hampered.

Despite the fact that we place a strong emphasis in the model on the effects of subtle avoidance and subsequent social performance deficits, it should be pointed out that as with any anxiety disorder, social phobia may also be characterised by more obvious avoidance. Clearly,

failure to enter situations or escape soon after entry will reduce opportunities for appropriate feedback and reduce opportunities for positive modification of the mental representation of performance or expectations about the audience's standards.

ETIOLOGICAL CONSIDERATIONS

Consistent with conceptualizations of other anxiety disorders (e.g. Beck & Emery, 1985; Clark, 1986; Rapee, 1991), the current model is based on the presumption that anxiety in a social situation is a response to perceived threat. Individuals with social phobia differ from those without social phobia in terms of the extent to which they appraise cues as predictive of threat and the extent of threat predicted by a given cue. The model presented here provides a breakdown of the cognitive processes which influence such threat appraisals. We may also wish to speculate about the origins of these individual differences in threat appraisal.

There can be little doubt that there is a substantial genetic influence to anxious symptomatology (Jardine, Martin & Henderson, 1984; Kendler, Neale, Kessler, Heath & Eaves, 1992). Twin research provides us with information that a sizeable proportion of the variance in anxious symptomatology and anxiety disorders can be accounted for by genetic input (Andrews, 1996). However, such data tell us little about the precise nature of this genetic influence. Large twin-studies have clearly indicated that most of the genetic component is common to all of the anxiety disorders and most probably also to some forms of depression (Andrews, 1996; Kendler, Heath, Martin & Eaves, 1987). In contrast, family studies frequently demonstrate diagnostic specificity within families (Hudson & Rapee, *in press*). For example, a study by Fyer, Mannuzza, Chapman, Martin and Klein (1995) found that individuals with social phobia were more likely to have first degree relatives with social phobia than with panic disorder or simple phobia. Combining these two sources of information suggests that a general tendency to interpret situations as threatening may be genetically mediated while environmental family factors may be of importance in channelling this processing style toward specific categories of cues (e.g. social cues) (Hudson & Rapee, *in press*). Genetic factors may, therefore, be responsible for providing a tendency to preferentially allocate attentional resources toward danger but environmental factors may help to determine which cues receive attentional priority.

We would predict then, that the moulding of a general threat appraisal style into a specific concern with social evaluation may be largely the result of experience with particular family factors. Several factors may provide good candidates, in particular, childrearing styles, modelling, and restricted exposure.

There is a vast literature examining the association of an overprotective or overintrusive parenting style with anxious symptomatology (see Rapee, 1997 for a review). While studies have varied greatly in terms of their methodological rigour and results have not always been totally consistent, the data have broadly indicated that overcontrolling parenting is positively associated with anxiety (Rapee, 1997). Few studies have distinguished types of anxiety, but those that have tend to indicate a slightly more consistent relationship between overprotective parenting and social phobia than with other anxiety disorders such as panic disorder (e.g. Arrindell, Kwee, Methorst, van der Ende, Pol & Moritz, 1989; Bruch *et al.*, 1989b; Rapee & Melville, 1997). Excessive control from the parent is likely to reinforce for the child the message that 'I am not competent or capable to help myself'. In terms of the current model, this could have effects at a variety of points. Most specifically, however, it is likely to affect the mental representation of how others presumably see one's performance, particularly the template held in long-term memory. By receiving the message that one's parents view one as not competent, the mental representation of others' views of one's performance is likely to become strongly negatively biased.

Modelling factors may also be influential in the development of social fears. One or both parents of offspring with social phobia are also likely to score high on social concerns (Bruch *et al.*, 1989b). As such, offspring may well internalize verbal and nonverbal messages from parents. For example, in two studies (Bruch & Heimberg, 1994; Bruch *et al.*, 1989b), it was found that adult social phobics were more likely to retrospectively report that their parents placed great importance on the opinions of others than were agoraphobics or nonclinical controls. In terms of

the model, this is particularly likely to increase the perceived probability of negative evaluation from others and also to provide information that others may hold high standards for one's performance. In a recent study of anxious children, children with a variety of anxiety disorders (including social phobia) were more likely to report responding to a social threat with avoidance after discussing the situation with their parents than before (Barrett, Rapee, Dadds & Ryan, 1996). Micro-examination of these parent-child interactions indicated that anxious parents were more likely to support avoidant responses in their children (Dadds, Barrett, Rapee & Ryan, in press). These findings suggest that not only may parents emphasize negative evaluation from others, but they may also be partly responsible for promoting avoidance behaviors as a method of coping.

Finally, several studies have demonstrated that people with social phobia are more likely to report that their parents did not encourage family socialization than are people with panic disorder or nonclinical controls (Bruch & Heimberg, 1994; Bruch *et al.*, 1989b; Rapee & Melville, 1997). By promoting avoidance in this way, parents would again be emphasising the risk of negative evaluation from others while poorly equipping the child to deal with it.

TREATMENT IMPLICATIONS

Treatment programs for social phobia generally share a number of common features including cognitive restructuring to alter appraisals of threat, exposure to reverse patterns of overt avoidance, and social skills training to improve social performance (Heimberg, 1989). Clearly, these components should affect key points of the model and, as such, should be effective in the reduction of social anxiety. Empirical evaluations of treatment outcome certainly support this prediction (Heimberg *et al.*, 1990; Mattick & Peters, 1988; Turner, Beidel, Cooley, Woody & Messer, 1994). However, it is also clear that most programs have relatively limited success and that there is considerable room for further gains in the treatment of social anxiety, especially at the higher ends of the continuum (generalized social phobia, avoidant personality disorder) (Heimberg & Juster, 1995; Rapee, 1993).

There are several points in the model where specific interventions could potentially improve treatment outcome.

According to the model, anxiety could be directly reduced and performance enhanced (thereby indirectly reducing anxiety) if attentional resources were directed away from the mental representation of how the person appears to the audience and indicators of negative evaluation from the audience. These resources would be more effectively utilized if directed toward the task at hand and onto more positive aspects of the audience. To date, no technique to produce such effects has been adequately tested. However, some studies have demonstrated the value of attentional training techniques in test anxiety and performance anxiety (Ribordy, Tracy & Bernotas, 1981; Wise & Haynes, 1983; Ziegler, 1994). More recently, a single case study has been used to demonstrate the potential value of attentional training with an individual with social phobia (Mulken, Bogels & de Jong, 1995). The client's primary problem involved concern over blushing, and the attentional training involved teaching him to allocate more attention to current tasks and to the environment and away from his physical sensations. Over six sessions of attentional training, there was a significant decrease in several measures including frequency of blushing and avoidance of social situations.

The model also predicts that a less negative and, in most cases, more realistic mental representation of how the audience sees the individual will also reduce anxiety. Clearly, this is the focus of much of the cognitive restructuring which is conducted in standard treatment programs. Both clinical experience and empirical evidence suggest that specific cognitive restructuring is a valuable component of effective treatment programs for social phobia (Butler, 1985; Mattick & Peters, 1988). Nevertheless, in most programs, only a small proportion of the cognitive restructuring is likely to be directly aimed at adjusting the individual's perception of his/her appearance or behavior as seen by the audience, the presumed standards expected by the audience, or the discrepancy between the two. Effectiveness may be increased if this became a more central component. In addition, explicit feedback from external sources may provide a more effective means

of altering the mental representation of one's appearance/behavior. Some group treatment programs include extensive role plays in treatment and part of this aspect includes performance feedback from peers (Hope *et al.*, 1995). This component may be further enhanced via objective feedback for example from video, audio, or physiological recording. As described earlier, at least one study has demonstrated that video feedback can help to alter the mental representation of appearance in a positive direction (Rapee & Hayman, 1996).

Instruction and feedback regarding subtle avoidance behaviors should also help to produce a more positive mental representation. According to the model, this should be similar in form to the response prevention methods employed in the treatment of obsessive compulsive disorder. When exposure is undertaken, participants need to be expressly forbidden to engage in subtle avoidance behaviors (Wells *et al.*, 1995). Thus, in contrast to most social skills training programs, treatment would not focus on teaching the 'hows' of social skills, but in providing permission and encouragement to abandon comfortable but maladaptive social behaviors.

CONCLUSIONS

The preceding pages describe our attempt to provide a model for the maintenance of social phobia. There were several choice points at which we could have gone in different directions. For example, we decided to examine the anxiety experienced in a given situation as our starting point. In addition, we focused primarily on ways in which the individual processes information and interacts with the world. From our perspective, and based on the treatment and research methods that are frequently used in this field, we believe that this approach provides the most logical framework for an understanding of social phobia. Of course, there are several other perspectives that could have been chosen (e.g. social, biological) and our focus on a cognitive perspective in no way implies that these other perspectives are 'wrong'.

Models of psychopathology provide a shorthand description of the ways in which various factors may interact to produce the disorder. Hopefully, the model presented here can provide just such a function. We believe that the current model provides several unique predictions and therefore, can help to further our understanding of social phobia. Whether, in the light of future research, the model requires modification or needs to be completely rewritten, it will have achieved its aim if it provides impetus for further investigation and a way of organising this information.

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