

COGNITIVE VULNERABILITY TO SOCIAL ANXIETY

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This paper discusses factors that might affect vulnerability to social anxiety and clinically significant social phobia. The paper begins by describing the “cognitive signature” of socially anxious individuals as illustrated by studies on attentional, memory, and interpretation/judgement biases. These studies collectively suggest that socially anxious individuals and those with social phobia tend to interpret social information in negative ways, likely contributing to the maintenance of social anxiety over time. The paper then reviews factors that might influence the development of this cognitive style, including temperament, early attachment, and factors related to family, peers, and other life events. Implications for prevention and treatment of social anxiety and social phobia are also discussed.

According to Schlenker and Leary (1982), social anxiety is experienced when people are motivated to make a desired impression on others but are not certain they will do so (see Leary & Kowalski, 1995). This concern about making a particular impression on others motivates people to put their best foot forward in social situations. It makes us prepare for job interviews, use good manners on a first date, and behave nicely when first meeting people who might potentially become friends. In fact, it has been suggested that “social anxiety . . . may be the emotion primarily involved in the avoidance of social rejection” (Leary & Kowalski, 1995, p. 25) and that the “the need to belong” is a “fundamental human motivation” (Baumeister & Leary, 1995, p. 497).

From this perspective then, some social anxiety can be viewed not only as normative, but also as adaptive. Gilbert (2001), taking an evolutionary perspective to understanding social anxiety, explained that “early human social success would involve cooperation, reciprocity,

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and complementarity from others, that is, our self-interests are served when others are induced to invest resources (time and energy) in us, and failure to elicit such investment could be costly" (p. 728). In modern times, group affiliation also seems to have survival value. There is a rich body of literature suggesting that a lack (or more importantly, a perceived lack) of social support is associated with poor physical and mental health (see Baumeister & Leary, 1995).

For some people though, the costs of social anxiety outweigh the potential benefits associated with being able to form and maintain quality relationships. Some people are so concerned about making a desired impression on others and so doubtful that they can succeed at doing so that they experience significant distress in social situations. Furthermore, people who have difficulties with social anxiety tend to suffer impairments in functioning. Rather than social anxiety serving to help them get jobs, friends, and romantic relationships, individuals who experience a great deal of social anxiety show deficits in these areas (e.g., Schneier et al., 1994).

A number of different labels have been used to describe individuals who experience problematic levels of social anxiety. Many studies simply label them as "high socially anxious," based on some cut-off of standard measures assessing the construct of social anxiety. Shyness is another common label and has been defined as "a heightened state of individuation characterized by excessive egocentric preoccupation and overconcern with social evaluation . . . with the consequence that the shy person inhibits, withdraws, avoids and escapes" (Zimbardo, 1982, p. 467-468). Shyness is very common, with upwards of 40% of the population describing themselves this way; prevalence rates are even higher during adolescence when impression management concerns are at their peak (see Henderson & Zimbardo, 2001). At the extreme end of the continuum are individuals with social phobia, defined by the *Diagnostic and Statistical Manual of Mental Disorders* as "a marked or persistent fear of one or more situations in which the person is exposed to possible scrutiny by others and fears that he or she may do something or act in a way that will be humiliating or embarrassing" (American Psychiatric Association, 1994, p. 416). Social phobia is far less common than shyness, but still highly prevalent, affecting about 13% of the population at some time in their lives (Kessler et al., 1994). Even with revised rates suggesting that the one-year prevalence of social phobia is more likely closer to 4% (as compared to the 7.4% one-year prevalence rate reported in the National Comorbidity Survey by Kessler et al., 1994), the disorder is still relatively common and remains the most common anxiety disorder besides specific phobia (Narrow, Rae, Robins, & Regier, 2002).

Looking at these definitions, the constructs of social anxiety, shyness,

and social phobia appear to be remarkably similar and in fact, some researchers (e.g., Rapee, 1998) see these various terms as essentially describing the same thing. While the constructs of shyness and social phobia do not overlap perfectly (see Heiser, Turner, & Beidel, 2003), these two groups do share numerous similarities (see Henderson & Zimbardo, 2001). In this paper, we will first explore the cognitive style of shy, socially anxious, and social phobic individuals. We will then consider various factors that might contribute to the development of this cognitive style. Throughout, we point out whether there are meaningful differences between non-clinical samples defined as shy or socially anxious and clinical samples who have been formally diagnosed with social phobia.

THE COGNITIVE SIGNATURE OF SOCIALLY ANXIOUS INDIVIDUALS

A large body of literature has described the cognitive biases exhibited by socially anxious individuals (see Ledley, Fresco, & Heimberg, 2006, for a review). Specifically, researchers have investigated attentional bias, memory bias, and interpretation bias in these populations, positing that such biases might play a role in the development of difficulties with social anxiety and are even more likely to play a role in their maintenance.

ATTENTIONAL BIAS

The Stroop and Dot-Probe Paradigms. The literature examining attentional bias has made use of the Stroop and dot-probe paradigms. In the Stroop, participants are shown words written in various colors of ink and are asked to say the color of the ink, rather than reading the word. Slowed response suggests that the content of the word has diverted participants' attention, making it more difficult to simply say the color. In the dot-probe paradigm, participants are typically shown two words (or other stimuli, such as faces), one neutral and one emotionally valenced. The stimuli are typically placed one above the other and right after they are shown, a dot is shown in the place of one of the words. If participants respond more quickly to a dot exhibited in the same spot as an emotionally valenced stimulus, this suggests that they are still attending to that stimulus, instead of having looked away (or focused on the neutral stimulus).

Stroop studies have been quite consistent in showing that individuals with social phobia (Hope, Rapee, Heimberg, & Dombeck, 1990; Lundh & Öst, 1996a; Maidenberg, Chen, Craske, Bohn, & Bystritsky, 1996; Mattia, Heimberg, & Hope, 1993), as well as those who are shy (DiPino &

Riskind, 2000), selectively attend to social–threat related information as indicated by a longer latency to color–name social threat related words as compared to either neutral words or threatening words of a non–social nature.

Mixed findings have been reported with the dot–probe paradigm. Asmundson and Stein (1994) found that individuals with social phobia responded more quickly to the presentation of the dot when it was exhibited in the same spot as a social–threat relevant word, as compared to when it was exhibited in the same spot as a neutral word, providing evidence for an attentional bias. However, Mansell and colleagues (Mansell, Ehlers, Clark, & Chen, 2002) found no evidence of an attentional bias toward social–treat relevant words in a non–clinical sample of socially anxious individuals even after participants had been told that they would have to give a speech later on in the study.

A very clever variation on the dot–probe technique has been to replace social threat words with various facial expressions, assuming that these stimuli are more externally valid than mere words. By definition, socially anxious people are exquisitely sensitive to the feedback that they receive from others and facial expressions are an important way in which that feedback is communicated.

In a modified dot–probe study using a clinical sample, Chen, Ehlers, Clark, and Mansell (2002) reported that patients with social phobia responded more slowly to dots presented after any faces (positive, negative, or neutral) than dots presented after household items. Mansell, Clark, Ehlers, and Chen (1999), using a non–clinical sample, found slowed responding to faces only after participants were told that they had to make a speech later on in the study. Following this speech threat, response was slower after being presented with any emotional faces (positive or negative) as compared to neutral faces. This general pattern of slowed responding to faces suggests that participants are quickly attending to them, but then immediately diverting their attention away, suggesting a vigilance–avoidance pattern of responding (see Mogg, Mathews, & Weinman, 1987). Although anxious people are vigilant to threat in their environments, they also are motivated to avoid threat, reduce its impact, or to act as if it does not exist. This leads them to quickly divert their attention away from threat once it is noticed.

It is interesting to note that this delayed responding contrasts with Asmundson and Stein’s study, which showed accelerated responding to social–evaluative words as compared to neutral words. This suggests that words and faces might represent different levels of threat to socially anxious individuals. It is also interesting to note the inconsistencies in the Chen et al. (2002) and Mansell et al. (1999) studies. It seems that individuals with non–clinical social anxiety need an extra “push” to evi-

dence the vigilance–avoidance pattern of processing. Without a speech threat, they do not appear especially reactive to facial stimuli; when presented with the speech threat, it seems that all emotional faces (as compared to neutral faces) become reminders of the potential for evaluation. In contrast, the clinical group showed an attentional bias to all faces, regardless of expression (and without the need for a speech threat; it is possible that patients with social phobia might always be ‘primed’ to react to faces in this way). The greater severity of social anxiety in the social phobia group seems to have made all faces seem threatening, even those that showed no emotion at all. Clearly, more research is needed to see if these interesting differences between individuals with social phobia and those who are socially anxious are robust.

In the meantime though, it is interesting to consider how the tendency to divert attention away from faces might facilitate maintenance of social anxiety. First, people who do not attend to facial expressions might come across as lacking social skills. While speech certainly drives conversations, facial expressions play an important role as well and by not attending to them, socially anxious individuals might miss out on important cues that would make the conversation flow well. Similarly, by not looking at faces, socially anxious individuals fail to make eye contact with the people to whom they are speaking. This too can make people look as if they lack social skill or are disinterested. Furthermore, having a conversation with someone who fails to make eye contact can be uncomfortable, even for people who are not socially anxious. This general focus of attention away from faces can result in negative social interactions for socially anxious individuals, serving to confirm their negative beliefs. Similarly, by diverting attention away from faces, socially anxious individuals can also miss out on positive cues, like smiles or nods, that could serve to disconfirm their beliefs.

It is also possible, as suggested by self-verification theory, that socially anxious individuals might actually seek out negative information from people with whom they interact (during the brief time that they are attending to any social cues at all). Self-verification theory suggests that individuals use social interactions to verify and confirm their self-perceptions (Swann & Read, 1981). Experimental research shows that, during social interactions, people seek out feedback that confirms their self-perceptions and that after interactions, they remember this information better than information that is incongruent with their self-perceptions (e.g., Swann & Read, 1981). While it seems counter-intuitive, people who have a low view of themselves might actually prefer negative feedback over positive feedback, simply because it confirms their self-concept (Swann, 1992). As such, individuals with social phobia might pick up on anything that could be interpreted as social failure

(e.g., a yawn, a person discontinuing a conversation, a person gazing around a room at a party), simply because they are more comfortable with this type of information than with incongruent information (e.g., someone smiling or nodding).

Studies Using Different Methodologies. A number of other studies have made use of different methodologies to investigate attentional biases in socially anxious individuals. An interesting series of studies have made use of the “face-in-the-crowd” paradigm. In this paradigm, participants are shown an array of faces in which all of the faces exhibit the same expression or in which a discrepant face is added to the uniform array. Participants are asked whether or not there is a discrepant face in the crowd. Gilboa-Schechtman, Foa, and Amir (1999) found that all participants were quicker at finding an angry face in a crowd of neutral faces than they were at finding a happy face in a crowd of neutral faces. However, this discrepancy was more pronounced in individuals with social phobia.

Veljaca and Rapee (1998) also found evidence that socially anxious individuals selectively attend to cues in the environment that might be indicative of criticism. In their study, participants who had scored either high or low on a measure of social anxiety were asked to give a speech to an audience of confederates who had been trained to engage in an equal number of positive (e.g., leaning forward) and negative (e.g., yawning) feedback behaviors, many of which included facial feedback of some sort. While participants low in social anxiety detected more positive feedback behaviors than negative feedback behaviors from audience members, participants high in social anxiety showed the opposite effect. Similar results were reported by Perowne and Mansell (2002).

Taken collectively, these studies suggest that individuals who are socially anxious selectively attend to social threat in their environments, whether it be delivered in the form of words, facial expressions, or other nonverbal behaviors. Again, this tendency to attend to the negative serves to confirm negative beliefs and precludes individuals who are socially anxious from picking up on information that could disconfirm their beliefs.

MEMORY BIAS

It is clear that socially anxious individuals selectively attend to socially threatening information in their environments. Once they have attended to it, however, do they have a better memory for it than for neutral information or for information that might be threatening but lacks personal salience? The research on memory bias attempts to answer just this question.

In contrast to the research on attentional bias, studies on memory bias

have been less consistent. Some studies have suggested that memory biases in social phobia do not exist (e.g., Lundh & Öst, 1997; Rapee, McCallum, Melville, Ravenscroft, & Rodney, 1994). However, a study by Amir, Foa, and Coles (2000) did find evidence for enhanced implicit memory for social-threat relevant information as compared to neutral information among patients with social phobia, using the white-noise judgment paradigm (Jacoby, Allan, Collins, & Larwill, 1988). The white noise judgment paradigm was developed to reduce the influence of explicit memory processes on tasks meant to measure implicit memory, by “masking” auditory stimuli (sentences). Participants in Amir et al.’s study were asked to listen to and then repeat neutral sentences and social-threat related sentences. During the test phase, participants were presented with the sentences that they had heard before (“old”) and novel sentences (“new”), all of which were masked by white noise at variable volumes. Participants were then asked to rate the level of noise masking each sentence. Ratings of lower noise volume for old sentence than for new sentences have been taken as indicative of implicit memory (Jacoby et al., 1988). In this study, since the pattern was found only for socially threatening sentences among persons with social phobia, support was found for the presence of an implicit memory bias.

Some studies have gone beyond memory for words and have presented participants with more detailed information about social interactions. In an interesting study by O’Banion and Arkowitz (1977), women who were high or low in social anxiety were given feedback about their personalities after interacting with a male confederate. As compared to women who were low in social anxiety, those who were high in social anxiety had better memory for negative feedback about themselves; group differences did not emerge for positive information. Wenzel and Holt (2002) failed to find evidence of memory bias for social-evaluative information. In their study, participants were presented with prose passages—some relevant to evaluative threat and some neutral in content. Participants were asked to complete free recall tasks immediately after reading each passage. Patients with social phobia actually remembered less information from the passages pertaining to evaluative threat than did the non-clinical controls. It is possible that a bias would have emerged if the evaluative information presented to participants had been self-referent, as it was in the O’Banion and Arkowitz study.

In line with research on attentional biases, some researchers have explored memory for faces in people with social phobia. These studies suggest that patients with social phobia are better than non-clinical controls at recalling which people had exhibited negative facial expressions following an encoding task (Foa, Gilboa-Schechtman, Amir, & Freshman, 2000, Experiment 1), as well as at recognizing critical faces (Coles &

Heimberg, 2005; Foa et al., 2000, Experiment 2; Lundh & Öst, 1996b). With their non-clinical sample of socially anxious individuals, Mansell et al. (1999) found evidence for enhanced recognition of any emotional faces (critical or accepting, as compared to neutral), but only following speech threat. In contrast, Pérez-López and Woody (2001) found that patients with social phobia were actually *slightly* more likely to remember accepting faces than critical faces following a speech threat. These individuals were given some time to prepare their speech before performing the recognition task though, perhaps interfering with their ability to encode information about the pictures that they had seen.

While not examining memory bias per se, some studies have also examined memory for non-socially threatening information in socially anxious individuals. For example, Hope, Heimberg, and Klein (1990) asked female college students who had been classified as being high or low on social anxiety to interact with a male confederate. They were later asked to recall aspects of the interaction. Participants who scored high on the measure of social anxiety recalled less information (e.g., interests, appearance, background) about the male conversation partner and were more prone to make errors in their recall than were participants who scored low on the measure of social anxiety. In a subsequent study, Hope, Sigler, Penn, and Meier (1998) were not able to entirely replicate the earlier findings; however, females who were high in social anxiety did make more recall errors than females who were low in social anxiety. Other studies with non-clinical samples show similar findings (e.g., Bond & Omar, 1990; Daly, Vangelisti, & Lawrence, 1989; Kimble & Zehr, 1982).

These findings fit very nicely with recent research on the importance of focus of attention in social phobia (Clark, 2001). When socially anxious individuals find themselves in stressful social situations, their attention is focused inward on themselves and on how they believe that they are coming across to others, rather than on the social situation at hand. Similarly, studies have shown that socially anxious individuals are more likely in social situations to take an "observer perspective" (i.e., see themselves through the eyes of others or as if viewing themselves on videotape) when remembering themselves in social situations, in effect "spectatoring" on themselves. This contrasts with a "field perspective" in which people recall situations as viewed through their own eyes. In other words, when socially anxious individuals look back on social situations, they tend to remember them from the perspective of how they *think* they were viewed by others (e.g., Coles, Turk, & Heimberg, 2002; Coles, Turk, Heimberg, & Fresco, 2001; Hackmann, Surawy, & Clark, 1998; Wells, Clark, & Ahmad, 1998; Wells & Papageorgiou, 1999) rather than based on what actually occurred in the social situation.

What are the implications of self-focused attention and the tendency to take the observer perspective? Socially anxious people seem to come away from social situations with biased memories of what actually happened during them, as well as having poorly encoded non-self-relevant material (e.g., the name and profession of a person with whom they chatted at a party). The next time they are faced with deciding whether or not to enter a social situation, decisions might be affected by the memories of how the last event turned out (e.g., "I made a fool of myself at the last party, why would I go to this one?"). Furthermore, if socially anxious people decide to enter a given social situation again, they might come across as lacking social skill because they cannot remember important information from the last time they were in that situation. This can result in negative evaluation and rejection from others, exactly what the socially anxious individual fears.

JUDGMENT AND INTERPRETATION BIASES IN SOCIAL PHOBIA

The final type of bias exhibited by individuals who are socially anxious are judgment and interpretation biases. These biases influence perceptions of the self and of the social world. For example, socially anxious individuals tend to be their own worst critics. Numerous studies have shown that socially anxious individuals (e.g., Rapee & Hayman, 1996), as well as those with social phobia (e.g., Alden & Wallace, 1995; Rapee & Lim, 1992; Stopa & Clark, 1993), judge themselves more negatively than they judge others and also judge themselves more negatively than they are judged by others. Furthermore, individuals with social phobia are more likely than non-clinical controls to assume that other people interpret physical symptoms that they exhibit (like blushing, shaking, or sweating) as signs of an intense anxiety problem or some other psychiatric disorder rather than some more benign explanation such as being hot, cold, or tired (Roth, Antony, & Swinson, 2001).

Researchers have also explored the beliefs of socially anxious individuals about the probability that negative outcomes will occur in social situations and about the cost of these outcomes were they to occur. Individuals with social phobia assign greater likelihood to negative social outcomes than to negative non-social outcomes (Foa, Franklin, Perry, & Herbert, 1996; Lucock & Salkovskis, 1988) or to positive social outcomes (Gilboa-Schechtman, Franklin, & Foa, 2000). This same finding has been reported in children with social phobia (Spence, Donovan, & Brechman-Toussaint, 1999). Studies have also shown that when individuals with social phobia are presented with ambiguous social situations (e.g., not obviously positively or negatively valenced) they are more likely to select a negative interpretation for them even when posi-

tive and neutral interpretations are available (Amir, Foa, & Coles, 1998). Furthermore, when presented with mildly negative social events, individuals with social phobia were more likely than patients with other anxiety disorders to interpret these events as negative and to interpret them in catastrophic terms (Stopa & Clark, 2000). In addition to overestimating the likelihood of negative outcomes in social situations, individuals with social phobia also tend to see these outcomes as far more costly than do non-clinical controls (Foa et al., 1996; Gilboa-Schechtman et al., 2000).

Constans, Penn, Ihen, and Hope (1999) explored questions in a non-clinical sample similar to those investigated by Amir et al. (1998). In their study, participants who were high and low in social anxiety were asked to read a vignette describing a blind date that included ambiguous information about social and non-social aspects of the date. The high socially anxious participants were more likely than the low socially anxious participants to interpret ambiguous social aspects of the date in a negative way. Group differences did not emerge for interpretations made about non-social aspects of the date. An interesting study in children also deserves mention here. Muris, Merckelback, and Damsma (2000) told stories to children that included ambiguous social information. The children were asked to indicate when the story got scary. Children who were high in social anxiety required fewer sentences before indicating that the story was scary than children who were low in social anxiety.

In summary, there is compelling evidence to suggest that socially anxious individuals and those with social phobia interpret social information in negative ways. This tendency emerges in various ways. When presented with ambiguous information, socially anxious individuals tend to interpret it in a negative light. Furthermore, they tend to overestimate the likelihood that negative outcomes will occur for them in social situations and see these outcomes as being far more costly than individuals who are less socially anxious. Again, it is easy to see how such cognitive styles could lead to the maintenance of social anxiety. If people expect negative outcomes (and costly ones at that), it is reasonable for them to want to avoid social situations. By failing to actually engage in social situations, socially anxious individuals deny themselves the opportunity to gather disconfirmatory evidence. An added complication, of course, is that when socially anxious individuals gain some evidence that could be used to disconfirm their beliefs, they interpret it in a negative light.

FACTORS IN THE DEVELOPMENT OF THE SOCIALLY ANXIOUS COGNITIVE STYLE

In sum, individuals who are socially anxious expect negative outcomes in social situations and view these outcomes as highly costly. When in social situations, they tend to be particularly attuned to negative cues, noticing them quickly and then either dwelling on them (as suggested by Stroop and dot-probe tasks) or shifting attention away from them quickly (as suggested by modified dot-probe tasks using faces). Finally, where memory is concerned, socially anxious individuals may show a bias for remembering critical faces, but there is also evidence that they miss out on a lot of information in social situations, perhaps due to self-focused attention. Where might this cognitive signature come from?

TEMPERAMENTAL FACTORS

Given the complexities of carrying out longitudinal studies, it is extremely difficult to uncover the pivotal factors that contribute to the development of social anxiety. Perhaps to a greater extent than with other anxiety disorders that have relatively later onset (e.g., panic disorder), many patients with social phobia report having had difficulties with anxiety for as long as they can remember (see Antony & Swinson, 2000). This complicates retrospective recall of factors that might have contributed to the development of their problems. While some individuals with social phobia can recall a single traumatic event (e.g., standing up to make a presentation in class and being unable to speak) that they see as being the “starting point” of their social anxiety, many describe their social anxiety in temperamental terms (e.g., “I was *always* this way”).

Kagan (1994; see also Kagan, 2001) has compiled an impressive body of data supporting the notion that social anxiety is rooted in a specific temperamental style. Kagan began his research with a group of almost 400 four-month-old infants (Kagan, 1994). He exposed these infants to a variety of visual, olfactory, and auditory stimuli and based on their reactions, classified them as high reactive or as low reactive. The infants were then brought back to the lab at 14 months and 21 months and exposed to both social and nonsocial events. Using stringent criteria, the number of events to which participants reacted with a fear response was coded. High reactive infants (also referred to by Kagan as behaviorally inhibited) showed a fear response to a greater number of events than did low reactive infants (75% of whom actually responded to none or only one of the events with fear).

The participants were next studied at age 4.5. At this age, the children were observed as they interacted with an examiner and with same-sex, same-age peers. Children who had been classified as high reactive made fewer comments to the examiners and smiled less at them than did the children who had been classified as low reactive. Furthermore, almost half of the children who had been classified as high reactive were rated as inhibited when interacting with peers. In contrast, only 10% of children who had been classified as low reactive were rated as inhibited during this interaction.

At age 7.5, the children were interviewed again. At this time point, the main issue of interest was whether the children had developed anxiety symptoms. As would be expected, the children who had been classified as high reactive during infancy were more likely to exhibit anxiety symptoms at age 7.5 than were children who had been classified as low reactive during infancy. Interestingly, the best predictor of the presence of anxiety symptoms was exhibiting an inhibited style when interacting with peers at age 4.5. Kagan, Reznick, and Snidman (1988) reported similar findings in another sample. In this study, 13-year-old adolescents who had been classified as inhibited during infancy reported more anxiety symptoms than did those who had not been classified as inhibited. These findings applied specifically to social anxiety symptoms and have been mirrored in retrospective studies of both adolescents and college-aged students (see Hayward, Killen, Kraemer, & Taylor, 1998; Mick & Telch, 1998; Muris, Merckelbach, Wessel, & van de Ven, 1999). For example, Mick and Telch (1998) reported that socially anxious adolescents were more likely than adolescents with generalized anxiety to recall having been inhibited during childhood. These results suggest that a reactive or inhibited temperament might be uniquely related to the later development of social anxiety.

It is interesting to consider how temperamental style can influence the development of a particular cognitive style. For infants and children who find people frightening, it is reasonable to expect that they would divert their attention when confronted with them. It may become habitual for them to avoid looking at faces and making eye contact. Children might then never learn the importance of connecting with people in these ways and might also fail to learn that faces can also communicate positive, nonthreatening information. Another way in which temperamental style might impact on later cognitive style lies in the reactions of those who interact with the anxious infant. People might be less likely to approach infants who cry and appear fearful than infants who have a more outgoing disposition. This aversion might carry into childhood when peers and adults realize that these children might "do better" when left to their own devices. As such, behaviorally inhibited children

might gain less experience with others and might develop the belief that social interactions are frightening and should be avoided.

ATTACHMENT

Another early factor that might play a role in the development of the cognitive signature associated with social anxiety is the quality of attachment between parents and their children. People develop schemas for understanding their social world via this most early interpersonal relationship and it has been suggested that the quality of this relationship can have a major impact on personality development (e.g., Bowlby, 1982; see also Greenberg, 1999).

Attachment theorists have distinguished between secure and insecure attachment relationships (see Dozier, Stovall, & Albus, 1999). Securely attached children have parents who are attentive and responsive, while insecurely attached children have parents who are rejecting and undependable. Studies have suggested that insecure attachment patterns during infancy are related to problems with shyness and social anxiety during childhood. Bohlin, Hagekull, and Rydell (2000) followed children from 15 months until they were 8 to 9 years old. They found that children who exhibited a secure attachment style in infancy were more socially active, more popular and less socially anxious than children who had exhibited an insecure attachment style in infancy (similar findings were reported by LaFreniere & Sroufe, 1985, in 4 to 5 year olds). In a retrospective study, Schlette et al. (1998) found that shyness in adulthood was related to memories of having parents who were rejecting and lacked warmth.

Given the logistical difficulties of carrying out studies like those done by Kagan, and given the inherent difficulties with retrospective reports of parent–infant attachment, researchers have also examined adult attachment patterns, assuming that the way that we relate to one another as adults has its roots in the early parent–child relationship. Insecure attachment patterns in adulthood seem to be related to social phobia. Mickelson, Kessler, and Shaver (1997) explored adult attachment styles in the NCS and found that social phobia was negatively related to having a secure attachment style and positively related to having an avoidant or anxious attachment style. Eng, Heimberg, Hart, Schneier, and Liebowitz (2001) reported that individuals with social phobia were more likely than non-clinical controls to be classified as insecurely attached, and insecure attachment was associated with greater severity of social phobia symptoms.

It is interesting to consider how early attachment patterns can influence the development of beliefs about social relationships. While chil-

dren who grow up with secure attachment relations come to see others as accepting and dependable, those who grow up with insecure attachment relations come to see others as critical and unreliable. Seeing others in this way likely punctuates interpersonal relations with anxiety, thereby leading to avoidance. By staying away from other people, individuals who grew up with insecure attachment to their parents will never learn that not all relationships need to be this way. It is also possible that in having this expectation, they might do things in relationships (e.g., seeking a lot of reassurance, holding back from self-disclosure, etc.) that will turn people away, further confirming their negative beliefs.

OTHER FAMILY FACTORS

Thus far, we have discussed factors that might play a role in the development of social anxiety from early in infancy. Later in life, when cognitive capabilities expand, children come to learn more about relating to others from their parents. This learning can happen in many ways. There is evidence to suggest that people who develop social phobia are taught within the family about the importance of making a good impression on others. Caster, Inderbitzen, and Hope (1999) found that adolescents who described themselves as socially anxious were more likely than less socially anxious adolescents to report that their parents were concerned with the opinions of others. Similarly, Bruch, Heimberg, Berger, and Collins (1989) reported that people with social phobia were more likely than people with agoraphobia to recall that their parents overemphasized the opinions of others. In Caster et al.'s (1999) study, socially anxious adolescents were also more likely to report that their parents were ashamed of their children's shyness and difficulties in social performance.

How may parental emphasis on the opinions of others be related to the development of cognitive vulnerability to social phobia? When parents have strong social-evaluative concerns, it is likely that they will correct their children, constantly telling them how to act and what to say. This scenario may lead children to come to expect threat in social situations and may also lead them to believe that making a good impression on others is a difficult, if not impossible, goal to accomplish (Bruch et al., 1989; Buss, 1980).

Another way in which children can learn about how to relate to others is through watching their parents' behavior in the social arena. This can apply not only to parents' relations with their own peers, but also to parents' abilities to help their children navigate the social world. While some parents who have socially reticent children may purposefully set

up social interactions for their children, parents who themselves are socially anxious may be more than happy to facilitate avoidance for their children (which, in turn, serves their own desire to avoid).

Research has shown that social anxiety tends to breed social anxiety. In a study by Cooper and Eke (1999), the mothers of 4-year-olds who were classified as shy were seven times more likely to have social phobia than were the mothers of 4-year-olds who were classified as non-shy. Bögels, van Oosten, Muris, and Smulders (2001) investigated family correlates of social anxiety in children between the ages of 8 and 18. Their results show that greater levels of social anxiety in children is associated with greater levels of social anxiety in parents. This finding seemed to be carried by levels of social anxiety experienced by mothers, who tend to be more involved in the day-to-day social lives of their children. Retrospective studies have revealed similar findings. Alden and Cappe (1988) interviewed extremely shy adults and found that those who recalled having been shy since very early childhood reported that their parents were also very shy. Tilfors, Furmark, Ekselius, and Fredrikson (2001) inquired about levels of social anxiety among the parents of individuals who took part in a large epidemiological study in Sweden. Growing up with socially anxious parents was associated with a two- to three-fold increase of both social phobia and avoidant personality disorder.

Other studies have looked at specific deficits within the social life of the family that might contribute to development of problems with social anxiety. Various studies have found that socially anxious individuals grow up with parents who are themselves socially isolated and who also isolate their children from social experiences (e.g., Bögels et al., 2001; Bruch et al., 1989; Caster et al., 1999). Two points are important to consider here. Parents who fail to provide their children with the opportunity to learn to interact with others also prevent their children from learning that such interactions can be rewarding and pleasurable. From a young age, then, some people may get caught in a vicious cycle of social avoidance and distress. Furthermore, parents may also communicate to their children that social situations are dangerous and should be feared. Thus, children may become more likely to notice threat in the environment and, furthermore, may be more likely to respond to such threat in a negative and maladaptive way.

FACTORS RELATED TO PEER RELATIONS

As children grow older, they spend less time in the company of family and more time in the company of peers. As such, their beliefs about their abilities to manage in the social world are undoubtedly influenced by peer relations. The relationship between social anxiety and peer rela-

tions is a difficult one to disentangle. The research seems to suggest the existence of a reciprocal relationship such that socially anxious children are more likely than nonanxious children to experience negative peer relations, most notably peer neglect (La Greca, Dandes, Wick, Shaw, & Stone, 1988; Strauss, Lahey, Frick, Frame, & Hynd, 1988), and that these experiences lead to the exacerbation and maintenance of social anxiety.

Two studies have examined this complex relationship. Rubin and Mills (1988) assessed different types of social isolation in a group of school children during the second, fourth, and fifth grades. Children who were classified as behaving in a passive, solitary way while at school were rated by their peers as more anxious, withdrawn, and asocial than other children and were also more likely to be rejected (and less likely to be accepted) by their peers. This relationship between passive withdrawal and peer rejection got stronger as children got older. The authors also reported that the best predictor of loneliness during the fifth grade was low self-perceived social competence during the second grade. This study suggests that repeated peer rejection directed at passive, withdrawn children might contribute to the cognitive style associated with social phobia. Such children, based on repeated social failure, may develop a belief that they cannot succeed in social situations, leading them to then avoid social interactions with their peers and in turn, leading to increasing loneliness as they get older.

Vernberg, Abwender, Ewell, and Beery (1992) looked at the relationship between social anxiety and peer relations in a sample of adolescents whose families had recently moved to a new community. Studying the adolescents over the course of their first year in the new community, Vernberg et al. (1992) found that social anxiety was associated with less frequent peer interactions in the first few months of school (for both boys and girls) and to less intimate friendships (for girls only) in the later part of the year. Peer exclusion was associated with increased social anxiety as the year progressed. In light of Vernberg et al.'s study, it is interesting to note that in an epidemiological study, moving more than three times as a child was positively related to a diagnosis of social phobia in children (Chartier, Walker, & Stein, 2001). However, these data do not permit an examination of cause and effect; as in Vernberg et al.'s study, it might be the case that socially anxious children have a more difficult time making new friends after moving and that these difficulties lead to an exacerbation of social anxiety over time.

In line with the findings on difficulties with peer relations in socially anxious children, two studies have explored retrospective memories of childhood peer relations in socially anxious adults. Roth, Coles, and Heimberg (2002) found that college students' high scores on a measure of social anxiety were related to reports of frequent teasing during child-

hood. Exploring the same topic, McCabe, Antony, Summerfeldt, Liss, and Swinson (2003) found that 85% of participants with social phobia recalled having been teased or bullied during childhood. Patients with social phobia were more likely to recall having been teased or bullied than were patients with obsessive–compulsive disorder or panic disorder. These studies suggest that difficulties with peer relations during childhood can continue to have an impact into adulthood.

OTHER LIFE EVENTS

Other life events may also contribute to cognitive vulnerability for social anxiety. For example, marital conflict, including early parental separation or divorce (Chartier et al., 2001; Davidson, Hughes, George, & Blazer, 1993), lack of a close relationship with an adult during childhood (Chartier et al., 2001), and long–lasting separation from either parent during childhood (Wittchen, Stein, & Kessler, 1999) have all been associated with the development of difficulties with social anxiety.

Magee (1999) explored the influence of traumatic life events on the development of social phobia using data from the NCS. The onset of social phobia before the age of 12 in females was associated with rape and/or molestation by a relative. Chartier et al. (2001) also found a relationship between childhood sexual and physical abuse and incidence of social phobia. Magee (1999) suggests that because some perpetrators of rape or molestation blame their victims, people who have this type of experience might develop a more generalized fear of being criticized by others. While Magee did not find that parental divorce increased the odds of an individual developing social phobia (in contrast to the findings of Davidson et al., 1993), the onset of social phobia was strongly associated with verbal aggression between respondents' parents. Magee suggests that observing verbal aggression between parents can also be related to the development of generalized fears of being criticized by others. Watching one's own parents be verbally aggressive toward one another might suggest to a child that social relationships—even between people who are supposed to love one another—can be characterized by intense criticism and instability.

Various studies have also reported a link between the presence of psychopathology in parents and the development of social phobia in offspring (Chartier et al., 2001; Davidson et al., 1993; Wittchen et al., 1999). Lieb et al. (2000) explored this issue in greater detail, using data that was collected from over 1000 community adolescents. As suggested by research reviewed earlier, children of parents with social phobia were significantly more likely to also have social phobia than were children

whose parents did not have the disorder. While the presence of social phobia in the parent was the *best* predictor of social phobia in the adolescent, other anxiety disorders, depressive disorders, and alcohol use disorders in parents were also associated with social phobia in their children.

The common thread in these studies seems to be that people who develop social phobia may be more likely than others to have parents who were unavailable (because of poor mental health or because they actually left the home). In such situations, children may come to blame themselves and may come to see themselves as unable to establish and maintain positive social relationships. Such experiences may also lead children to develop the belief that social relationships are tenuous and that any "misstep" could lead to their dissolution.

These findings are also interesting to consider in relation to the role that families play in facilitating the social lives of their children. When parents divorce, children often move to new neighborhoods or start splitting time between both parents' homes. This can impact on children's social lives and, as already noted, can be particularly problematic for children who are already shy and reticent. Similarly, when parents divorce, their own social lives often become of greater concern to them as they begin to date and make new friends beyond the friendships that they shared with their former spouses. This new focus can negatively impact on anxious children who need all of the extra help that they can get with managing their own social lives. Other family factors, like parental psychopathology, can have a similar impact. When parents have their own difficulties to cope with, they have less resources available to facilitate social activities for their children and again, this might be most detrimental to children who already had difficulties with social anxiety.

CONCLUSIONS AND IMPLICATIONS FOR PREVENTION AND TREATMENT

Many factors might make people vulnerable to the experience of social anxiety. Some are present from very early on in life, most notably a reactive or inhibited temperamental style and an insecure attachment relationship between the infant and its parents. Others emerge later, including lessons that we learn from our parents about how to relate to others and experiences that we have with our peers. Events that happen within families, such as divorce and parental psychopathology, can also have an important impact.

These factors all seem to play a role in the way that individuals come to view the social world. In general, social anxiety seems to emerge from experiences that teach people that others are threatening, relationships are tenuous, and that they do not have the skills necessary to navigate through this complex social world. These experiences then impact on the way that information about the social world is processed, with socially anxious individuals being their own harshest critics and expecting negative and costly outcomes in social situations. Furthermore, socially anxious individuals seem to seek out information in their environments that supports their negative beliefs, while at the same time missing out on information that would disconfirm these beliefs.

It is interesting to note that significant differences are not very evident between socially anxious/shy individuals and those with clinically significant social phobia. Similar vulnerability factors are evident for both groups, and in general, they tend to exhibit very similar cognitive biases. This suggests that these groups are likely more similar than different, with differences being more quantitative (e.g., severity of social anxiety, degree of avoidance), rather than qualitative.

Knowing about vulnerability factors for social anxiety, and knowing about the cognitive signature of socially anxious individuals, can be helpful in two ways. First, this knowledge can inform prevention and early intervention efforts (e.g., see Dadds et al., 1997, 1999). Children who are temperamentally inhibited, or who grow up with socially anxious parents, or who have difficulties with peer relations early on, might benefit from interventions aimed at exposing them to social situations and helping them to engage sufficiently to shift their beliefs. Similarly, when children who are already shy or reticent are faced with life events that impact on their social lives (e.g., moving, divorce), they too should be helped to reengage in the social world.

Our knowledge about the cognitive style of socially anxious individuals also affects the way we treat social phobia. New approaches are focused on helping patients to shift their focus of attention outward to the social situation, rather than inward to how they are coming across to others (see Clark, 2001). This shift in self-focus helps socially anxious individuals to come across as more skilled, allows them to pick up on potentially positive cues from the environment, and furthermore, makes it more likely that they will actually get some enjoyment from social situations.

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