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Theoretical Overview
Social Anxiety Disorder

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Cognitive-Behavioral Models of Social Anxiety Disorder

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Since its recognition as a mental disorder in the *Diagnostic and Statistical Manual of Mental Disorders*, third edition (American Psychiatric Association, 1980), social anxiety disorder (SAD, also known as social phobia) has received increasing attention in the field of psychology as a complex, debilitating disorder that, left untreated, is often unremitting. In the last few decades, many theorists have contributed significantly to our understanding of this disorder, subsequently informing approaches to treatment. In this chapter, we review and compare aspects of the two preeminent cognitive behavioral models of SAD, as well as more recently proposed models of SAD.

Clark and Wells (1995): A Cognitive Model of SAD

Clark and Wells (1995) put forth a cognitive[1] model of SAD to explain why exposure to feared situations alone was not enough to extinguish fear in socially anxious individuals. According to their model, SAD develops as a result of an interaction between innate behavioral predispositions and life experiences, leading individuals to perceive the social world as a dangerous one which they have little ability to navigate. A core feature of this model, derived from self-presentational models described below, is "a strong desire to convey a particular favorable impression of oneself to others and marked insecurity about one's ability to do so" (p. 69). These beliefs contribute to the sense that the person with SAD is at substantial risk of behaving in an inept and unacceptable fashion and that such behavior will have catastrophic consequences involving loss of status, loss of value, or rejection. The following is a brief overview of the model—a discussion of the empirical support for specific aspects of the model is beyond the scope of this chapter, but interested readers are referred to reviews of research by Clark and Wells (1995) and Clark (2001).

The Wiley Blackwell Handbook of Social Anxiety Disorder, First Edition. Edited by Justin W. Weeks.

Dysfunctional Processes

Clark and Wells (1995) describe the dysfunctional pattern of social anxiety as being comprised of four interactive processes. The first process begins when people with SAD enter a feared situation and judge that they may be in danger of being negatively evaluated. They then turn their attention inward and use interoceptive information as the main source of feedback about their performance. Often, their internal experiences appear to provide confirmation of their social ineffectiveness, which is believed to be obvious to those around them (e.g., "I feel nervous, therefore everyone must realize I am nervous"). Compounding this negative self-perception, people with SAD often imagine themselves as others see them (the "observer perspective"), though these images are likely to be quite distorted. Clark and Wells refer to this attentional inward bias and distorted images as a *processing of the self as a social object*, and this is the putative reason why exposure alone to feared situations is insufficient to reduce social anxiety. They write:

> Clinically, the importance of this processing bias is that it prevents social phobics from getting maximum benefit from their everyday experience with social situations or from the exposure exercises used in behavior therapy treatment programs. When in feared social situations, social phobics process the negative feelings generated by their fear of the situation, but they do not check out what is really happening. (p. 72)

The second dysfunctional process relates to behaviors that socially anxious individuals engage in to prevent negative evaluation by others. Clark and Wells (1995) refer to these behaviors as *safety behaviors*. For instance, a person concerned with others noticing his profuse sweating may wear an extra layer of dark clothing. Ironically, safety behaviors often make the feared behavior or outcome more likely to occur: the extra layer of clothing may cause the person to sweat more. Safety behaviors also serve to maintain anxiety because they prevent the person from experiencing unambiguous, disconfirming evidence of their negative beliefs about feared consequences. So, although the feared outcome may not have occurred (e.g., people did not express disgust about the person's sweating), the person with SAD may attribute this to the fact that he or she engaged in this safety behavior.

The third dysfunctional process described by Clark and Wells (1995) is that individuals with SAD often overestimate how negatively others evaluate their performance and predict the consequences of social failures to be far worse than is realistic. As a result of these cognitive distortions, they are hypervigilant in monitoring their behavior and performance, which may further impair their ability to fully engage in social interactions. Real performance deficits may result, which could lead to others perceiving them to be socially unskilled, aloof, or unfriendly.

The final dysfunctional process delineated by Clark and Wells (1995) occurs either before or after a social situation is encountered. Prior to engaging in a social event, many individuals with SAD frequently experience a period of anticipatory anxiety in which previous negative experiences are recalled, and expectations of failure and images of the self performing poorly are evoked. This can lead to complete avoidance of the

situation. However, if the situation is not avoided, anticipatory anxiety can lead the person to enter the situation with a self-focused processing mode and reduced capacity for noticing positive reactions from others. Following a social interaction, people with SAD frequently review their performance in detail (referred to by Clark and Wells, p. 74, as a "postmortem" review or "post-event processing"), often recalling events and their outcomes to have been more negative than they really were, as their perceptions are colored by their attentional biases and cognitive distortions. Ultimately, this helps maintain negative self-schemas and increases the likelihood that the person will avoid feared situations in the future.

Rapee and Heimberg (1997): A Cognitive-Behavioral Model of SAD

Along with Clark and Wells' (1995) and Rapee and Heimberg's (1997) model is the other most widely cited and applied model of SAD in the literature. According to Rapee and Heimberg, social anxiety exists along a continuum, with individuals with SAD representing the higher end of the continuum. Similarly, the degree of dysfunctional patterns can be represented along a continuum. Thus, according to the model, the difference between those with SAD and those without is "the extent to which [individuals with SAD] appraise cues as predictive of threat and the extent of threat predicted by a given cue" (Rapee & Heimberg, 1997, p. 751).

A number of different factors are thought to influence the development of dysfunctional processes, which in turn lead to the development of SAD. A genetic tendency toward preferential attention to threat may be one factor, which interacts with early childhood family environment and/or other experiences (e.g., being teased or bullied) to create a perception of the social world as being dangerous and unforgiving. Consequently, a defining characteristic among those with SAD is the assumption that others are likely to evaluate them negatively. Additionally, individuals with SAD attach fundamental importance to being accepted by others. The result is a set of expectations and goals that the person feels unable to reach, accompanied by predictions of very negative consequences of this failure. The discrepancy between the mental representations of the self as seen by others and others' perceived expectations, according to Rapee and Heimberg (1997), lies at the heart of SAD. Below, we provide an overview of the model, including its recent update (Heimberg, Brozovich, & Rapee, 2010). As with the Clark–Wells model, a discussion of the empirical support for the Rapee–Heimberg model is beyond the scope of this chapter. Interested readers are referred to the original theoretical articles for reviews of empirical research; see also Roth and Heimberg (2001) and Turk, Lerner, Heimberg, and Rapee (2001).

Dysfunctional Processes

In this model, "social situations" are defined broadly and may include situations in which no social interaction actually occurs, as the presence of a *perceived* threat may be enough to evoke anxiety. Thus, the stranger walking down the street may become

an audience for and potential judge of the socially anxious person's appearance and behavior. For individuals with SAD, the prospect of an audience activates a mental representation of the self as they imagine they are perceived by that audience. This mental representation of the self is a distorted image that is shaped by a number of inputs. Rapee and Heimberg (1997) proposed that individuals form a "baseline image" (p. 745) that may be derived from past experiences and actual images of the self as seen by an audience (e.g., from mirrors or photographs) and which is consistent with negative self-schemas and core beliefs. It is modified in any given situation by internal (i.e., interoceptive) and external feedback. For instance, sensations of warmth may cause the person to imagine herself to be blushing noticeably, or a passing and ambiguous comment by another person in a group interaction may lead the person to think she has said something contrary to group opinion, and she thus imagines that she "looks stupid."

According to the model, one reason this mental representation of the self as seen by the audience is distorted is that individuals with SAD have a bias toward attending to external cues in the social environment that signal threat or negative evaluation. This orientation to threat is consistent with other anxiety disorders. However, Rapee and Heimberg (1997) also hypothesized that individuals with SAD also preferentially allocate attentional resources to monitoring and adjusting the mental representation of the self as perceived by the audience. This is in addition to the attentional resources needed to engage in the social task at hand. Consequently, social performance suffers as attentional resources are taxed, and the poor performance only serves to confirm negative mental representations of the self (e.g., that one is socially unskilled, awkward, etc.).

The model proposes that a key dysfunctional process is the comparison of the mental representation of the self with the perceived expectations of the audience. Socially anxious individuals typically believe that others hold extremely high standards for their performance, and the greater the perceived failure to live up to this standard, the greater the likelihood of negative evaluation, and the greater the anxiety. Socially anxious individuals anticipate the cost of such failure to be high, and this anticipation activates behavioral, cognitive, and physical symptoms of anxiety, which feed back into the mental representation of the self as seen by the audience in a most deflating way, renewing the vicious cycle, which continues until the situation comes to a natural end or is terminated by the anxious person. It is therefore not surprising that socially anxious individuals often engage in avoidance or escape from feared situations, as it seemingly provides respite from this cycle. However, behavioral avoidance becomes yet another source of shame and frustration and contributes to an increasingly negative mental representation of the self as seen by the audience.

In 2010, Heimberg et al. published an updated version of the model to incorporate knowledge from new findings about the processes that occur in SAD. For instance, a growing body of research has shown that individuals with SAD frequently engage in negative self-imagery (e.g., Hackman, Surawy, & Clark, 1998). In addition, compared with non-anxious individuals, the images of socially anxious individuals are often from the observer's perspective (Hackman et al., 1998). These findings are consistent with the theory that those with SAD formulate a mental representation of

the self as seen by the audience. The updated model highlights the role of negative imagery in influencing the mental representation of the self, and ultimately serving to maintain SAD.

A significant change to the model addresses what is thought to be the core fear in SAD, typically characterized as a fear of negative evaluation. However, recent research suggests that socially anxious individuals fear *any* evaluation, whether it is negative or positive (e.g., Weeks, Heimberg, Rodebaugh, & Norton, 2008; see **Chapter 20** of this volume). Fear of positive evaluation (FPE) may arise when successful social performance activates the belief that others will expect continued success in future social interactions, but the person may doubt his or her ability to meet these increased expectations. However, the construct of FPE is derived from an evolutionary model of SAD, which posits that socially anxious individuals work to maintain their (low) social status by not drawing attention to themselves (Gilbert, 2001; see **Chapter 2** of this volume). In this way, they do not risk losing status, nor will they have to engage in conflict with more powerful others to defend any elevated social status they may have achieved. The update to the Rapee–Heimberg model reflects this line of thinking, and the model now posits that those with SAD fear and attend to cues of evaluation, regardless of valence.

Lastly, another significant addition to the Rapee–Heimberg model is the inclusion of post-event processing (PEP) as a maintaining factor of SAD. As discussed by Clark and Wells (1995), PEP refers to the phenomenon of a person's review and recall of a situation after it has occurred. Often, the recall is biased and distorted, which then fuels fear and avoidance of future situations. PEP can therefore be conceptualized as the ongoing process that links the experience of one social situation to the next.

Comparisons Between the Models

As acknowledged by both teams of researchers, there is substantial common ground between the two models, with more points of agreement than difference. Both models highlight the excessive application of attentional resources to identifying threat cues, maladaptive avoidance behaviors, and the dysfunctional cognitions held by socially anxious individuals. These dysfunctional cognitions include distorted mental representations of the self as seen by others, unrealistic standards of performance, and unrealistically negative expectations of the consequences of a discrepancy between the two. According to both models, a lack of social skills is not a fundamental or universal difficulty among individuals with SAD. Rather, they suggest that social skills may be intact in socially anxious people, but anxiety, negative cognitions, or avoidance/safety behaviors may impede social interaction and give the appearance of social skill deficits (see **Chapter 17** in this volume for further discussion of social skills deficits in SAD).

A primary but subtle difference distinguishes the two models, and it concerns the nature of attentional focus that occurs among individuals with SAD. Clark and Wells (1995) assert that the core attentional bias in SAD is the person's shift to monitoring

internal cues, which prevents the person from attending to the actual reactions from others:

> Instead of observing other people more closely in order to gain clues about what they think about him or her, the social phobic appears to turn attention inwards, notice how he or she feels, and then automatically assume that this information is relevant to others' evaluation. (p. 71)

In contrast, Rapee and Heimberg (1997) emphasize that, although there is an increase in self-focused attention with increased anxiety, attention is directed externally in search of threat cues:

> [S]ocial 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. (p. 746)

Clark (2001) asserts that processing of external social cues *does* occur—and is negatively biased—but that this processing is reduced due to the direction of the person's attention toward internal cues. In contrast, Rapee and Heimberg describe a more interactive relationship between self-monitoring of internal cues and monitoring of the environment for external threat (Schultz & Heimberg, 2008)—persons with SAD essentially vacillate between searching for threat in the external environment and "looking" internally to evaluate the resources that they can marshal to defend against the threat.

In addition, the two models differ in the degree to which safety behaviors are featured as a core dysfunction in SAD. Rapee and Heimberg (1997) recognize in their model that socially anxious individuals are likely to engage in subtle avoidance behaviors aimed at reducing negative outcomes (e.g., joining a group conversation but remaining at the periphery), otherwise known as safety behaviors. Safety behaviors are not described as necessarily more problematic than overt avoidance in the Rapee–Heimberg model. In contrast, safety behaviors are seen as a core problem in the Clark–Wells model and are featured prominently in the illustrated diagram of the model (as revised by Clark, 2001).

Unsurprisingly, these differences are evident in the treatments associated with each theoretical model. In the treatment based on the Clark–Wells model, a central strategy is to help clients identify their safety behaviors and to compare their experiences using them and dropping them (Clark, 2001; Clark & Wells, 1995). In the second phase of treatment, clients are encouraged to shift to an external focus of attention while also dropping safety behaviors. As with other cognitive-behavioral treatments, behavioral exposures are coupled with cognitive restructuring to challenge distorted thinking and predictions of negative outcomes.

The basic cognitive-behavioral tenets of the treatment associated with the Rapee–Heimberg model are similar (Hope, Heimberg, & Turk, 2010). However, treatment is aimed at training socially anxious individuals to direct their attention away from the mental representation of the self and from indicators of evaluation in the

environment. Instead, clients are taught to attend to the task at hand and to indicators of non-negative reactions from the audience. In treatment, clients are also taught to avoid avoidance (both overt and subtle) so that they gather evidence contrary to their negative, automatic thoughts. Coupled with challenges to thinking errors, mental representations of the self as seen by the audience become more realistic, thereby reducing anxiety.

More Recent Cognitive-Behavioral Models of SAD

Hofmann (2007): Cognitive Factors that Maintain SAD

Hofmann (2007) argues that most cognitive-behavioral approaches to SAD draw too heavily from general cognitive-behavioral models and are not disorder-specific; he proposes what he describes as a "comprehensive maintenance model of SAD" (p. 196). He describes his model as similar to that of Clark and Wells (1995), but with some distinctions. Given the overlap of this model with the models previously discussed, we focus on points of departure.

The cycle of social anxiety, according to Hofmann (2007), begins with the person's perception that social standards of performance are high and that he or she is unable to meet them. Consequently, socially anxious individuals are motivated to keep performance expectations low, and one strategy may be to purposefully fail so that others' expectations of them do not increase (a phenomenon described above as FPE). This perception of one's inability to meet expectations exists in tandem with a deficiency in setting, defining, and achieving social goals. This component of Hofmann's model draws in part from the work of Leary and colleagues (Leary & Kowalski, 1995; also discussed below), who posits that the goal for most socially anxious individuals is to make a particular impression. However, according to Hofmann's model, socially anxious individuals have difficulty clearly defining their goals beyond this overarching one. Furthermore, they have trouble planning and implementing actions that are compatible with goal attainment. The perception of high standards and doubt that they can achieve them—fueled in part by a deficiency in defining achievable goals—results in increased apprehension as they enter social situations.

As in Rapee and Heimberg (1997), attention is thought to be directed at both self-monitoring and toward detecting external threat cues when a person enters a social situation. Like Clark and Wells (1995), however, Hofmann (2007) emphasizes the heightened self-focused attention that occurs in SAD. The perception of social threat is thought to evoke a number of dysfunctional processes that increase the expectation of negative outcome. Similar to other cognitive-behavioral models, Hofmann discusses the role of negative self-perceptions and the high estimated social cost of performing poorly. Hofmann adds that individuals with SAD are likely to perceive themselves to have low control over their emotions, causing them to fear the experience of anxiety, particularly when they believe that others will witness their loss of control. Regarding social skills, Hofmann agrees with Clark and Wells (1995) and Rapee and Heimberg (1997) in hypothesizing that the majority of socially anxious individuals have intact social skills; however, they perceive themselves to have poor

social skills. The combination of negative self-perceptions, high estimated social cost, low perceived emotional control, and perceived poor social skills leads to anxiety and increased expectation of failure. This, in turn, leads to behavioral avoidance and the use the safety behaviors, which prevent individuals from correcting their maladaptive thoughts. Finally, Hofmann agrees that following a social event or interaction, PEP serves to maintain SAD.

In summary, Hofmann's (2007) model overlaps with many aspects of the Clark–Wells and Rapee–Heimberg models but includes components distinct from those models, such as emphasizing the roles of social goal delineation and perceived emotional control. Hofmann's model also explicitly highlights the role of perceived poor social skills, arguing that social skills training is less crucial for most patients than improving their perception of their social skills.

Moscovitch (2009): The Proposed Core Fear in SAD

Moscovitch (2009) proposed a new cognitive-behavioral model intended to facilitate case conceptualization and treatment of SAD. Moscovitch contended that other cognitive-behavioral models and associated exposure-based treatments failed to conceptualize patient's core fears accurately. Moscovitch argued that orienting exposure-based treatments around feared social situations does not consider the precise feared stimulus idiosyncratic to each individual.

Moscovitch reminds us that exposure treatment is based on the principle that fear develops from past learning experiences in which a stimulus becomes associated with a dangerous or horrific outcome. In SAD, Moscovitch argues that many cognitive-behavioral models rely on the premise that the feared stimulus is negative evaluation, embarrassment, or an inability to convey a particular social impression. However, Moscovitch emphasizes that negative evaluation or embarrassment is the feared *consequence*, not the feared *stimulus* for those with high social anxiety. Rather, the true feared stimuli in SAD are *"characteristics of the self that one perceives as being deficient or contrary to perceived societal expectations"* (Moscovitch, 2009, p. 125, italics in original). He argues that self-attributes *themselves*, rather than the feared social situations, are the "most direct and sensible targets for exposure" (Moscovitch, 2009, p. 130).

According to Moscovitch's model, there are four dimensions of feared, self-relevant stimuli most salient for those with SAD. These include (1) perceived flaws in social skills and behaviors ("I will have nothing to say"); (2) perceived flaws in concealing visible signs of anxiety ("my hands will shake"); (3) perceived flaws in physical appearance ("I am ugly"); and (4) characterological flaws ("I am stupid"). He recommends that clinicians identify which of these dimensions are most salient to the individual and use that knowledge to guide a functional analysis, identifying relevant feared triggers and contexts, feared consequences, and fear-related safety behaviors.

With respect to exposures, Moscovitch suggests a shift in focus from situational exposure to dimension-specific exposure. Exposures should be framed as a chance to reveal feared aspects of oneself to others. He explains that patients should be encouraged to reveal their "authentic, non-concealed selves to others in the service of testing feared social and interpersonal consequences" (Moscovitch, 2009, p. 130). Additional clinical recommendations of this model include testing patients' inflated estimated

costs of violating perceived social norms and challenging their misperceptions of how critical audience observers actually are.

At a fundamental level, this model shares with many other cognitive-behavioral models the premise that SAD is based upon distorted, negative views of the self. It also highlights basic principles present in other models, such as the roles that avoidance and safety behaviors play in maintaining social anxiety and the related importance of eliminating concealment strategies for treatment to be effective. Heimberg (2009) questions the usefulness of making a distinction between feared stimuli and feared consequences, given that they seem to be highly confounded. Heimberg also challenges the idea that existing cognitive-behavioral treatments for SAD are not sufficiently tailored to individual clients.

Subtle differences exist, however. In comparison to Clark and Wells' (1995) model, which emphasizes that the socially anxious individual fears that he or she will *behave* in a socially inept fashion, Moscovitch's model emphasizes much broader feared self-dimensions (including those that encompass major characterological traits). Furthermore, whereas Clark and Wells (1995) assert that negative self-schema are activated only at certain times, negative schemata in Moscovitch's model are thought to be more stable. Finally, Moscovitch asserts that the internal focus on symptoms of anxiety proposed in Clark and Wells' model is important only to a subset of individuals with SAD.

Stopa (2009): The Importance of the Self in Understanding SAD

Like Moscovitch (2009) and Stopa (2009) asserts that understanding the role of the self is integral to understanding SAD. However, she disagrees with Moscovitch's idea that a perception of the self can be a feared stimulus and conceptualizes the self quite differently, drawing on social psychological theories about *multiple self-representations* (e.g., Conway & Pleydell-Pearce, 2000; Markus & Nurius, 1986). Although people have access to multiple self-representations, only a subset is retrieved at a given time. For individuals with SAD, self-representations that are comprised of negative and distorted images are cued for retrieval during social situations or in thinking about them. Thus, according to this conceptualization of SAD, therapy should aim to change the ease with which more positive self-representations are retrieved. Stopa also discusses how the discrepancy between a socially anxious individual's conceptualization of the ideal self versus his or her perception of the actual self may be a significant source of anxiety.

Stopa (2009) points out that all current cognitive-behavioral models (and not just Moscovitch's) emphasize the importance of the self, though the models vary in how central the self is compared to other processes. Clark and Wells (1995), Rapee and Heimberg (1997), and Hofmann (2007) all discuss the importance of some form of mental representation of the self as a factor that maintains SAD. She argues, however, that current cognitive-behavioral models do not capture the full complexity of the self. Stopa (2009) states that three broad categories can be used to think about the self: content, process, and structure. Content of the self refers to information about the self and the way in which that information is represented (e.g., verbal statements or imagery). When cognitive-behavioral models refer to mental representations of the self, they are referring to content. Process refers to how attention is allocated to

self-relevant information and also includes the strategies used to monitor and evaluate the self. Thus, the attentional biases highlighted in cognitive-behavioral models are a reference to self-related processes. Stopa (2009) argues that the third category, self-structure, is overlooked in current models. Self-structure refers to the way self-knowledge is organized, which impacts the ease with which different aspects of self-knowledge are accessed. Stopa argues that understanding self-structure may lead us to better understand how cognitive-behavioral therapy works to reduce social anxiety. She cites Brewin's (2006) retrieval competition hypothesis and Brewin's argument that "cognitive therapy does not change the contents of self-knowledge; instead, it helps create preferential access to more positive and functional knowledge about the self by inhibiting access to negative information" (Stopa, 2009, p. 49).

Other Models of SAD

Self-Presentation Model of SAD

Developed to explain normal experiences of discomfort in social situations, the original self-presentation model proposed that people experience social anxiety when they are motivated to make a particular impression on others yet doubt their ability to do so (Leary & Kowalski, 1995; Schlenker & Leary, 1982). Such scenarios may be common to healthy and impaired individuals alike; however, those who suffer with SAD experience these problems regularly and with greater intensity (Leary & Kowalski, 1995). They also experience more distress and interference because of it. A variety of temperamental, learning, and other factors can increase the risk of developing chronic and interfering social anxiety.

A refinement and extension of the model (Leary, 2001, 2010) specifies that self-presentational concerns are most likely to cause anxiety when people are concerned that important, close, or valued others will *devalue* their relationships with them. This extension highlights *sociometer theory*, the notion that people monitor their social environment on an ongoing and automatic basis for potential threats to their value to important others. Social anxiety serves as an early warning system to alert people when their relationships are in danger and to motivate them to take the necessary reparative action. This process is intrinsically linked to the original self-presentational theory, as the impression one makes on others directly contributes to the others' valuation of the relationship. Leary further specifies that people are generally concerned about making a good impression (or avoiding being devalued) based on their performance in four domains, including competence, physical attractiveness, conforming to group norms and ethics, and being socially skilled or desirable (Leary, 2001, 2010).

Key to the self-presentation model (and incorporated in the models presented by Hofmann, 2007; Moscovitch, 2009; and the Heimberg et al., 2010 update of the Rapee–Heimberg model) is the assertion that socially anxious individuals do not fear negative evaluation *per se*. The self-presentation model emphasizes that people experience social anxiety when they risk not making a particular impression as determined by specific social goals. Although, in most cases, people wish to make positive impressions on others (and fear negative evaluation if they do not), this is not always the case. Typically, someone may wish to make a particular kind of positive impression to

garner someone's affection, to win an election, or achieve some other goal. However, people may also wish to make negative impressions to inspire fear, leverage power, or escape an unwanted responsibility. Social anxiety may be experienced if one senses that he or she is making a positive impression, if that is not the particular type of impression desired (Leary & Kowalski, 1995; Schlenker & Leary, 1982).

By focusing on the strategic dilemma faced by individuals with SAD, the self-presentation model can provide a clear rationale for the cognitive, interpersonal, and behavioral diversity that characterizes socially anxious persons. This is because people may arrive at a discrepancy between their desired impression and the one that they feel they can make via several possible routes. Some people may have overly perfectionist standards or an excessively high need to please others. These individuals may hold reasonably positive impressions of themselves, but, because they sense that perfection is required for acceptance, they may experience chronic social anxiety nonetheless. Others may have poor social skills and have learned from experience that they have difficulty making the impression on others that they wish. Still others may have poor self-esteem and view themselves as deficient. Although these different groups of people may all experience social anxiety, they differ with respect to the etiology of their disorder, as well as the core cognitive and behavioral aspects of the disorder.

The self-presentation model of SAD shares some commonalities with cognitive-behavioral models discussed in this chapter, with some important distinctions. Like many other models, it emphasizes that fear is elicited when one risks scrutiny by others. Further, like evolutionary models discussed below and elsewhere in this volume (Gilbert, 2001; also see **Chapter 2** of this volume), it asserts that being somewhat sensitive to the impression one is making is adaptive, as humans depend on stable social relationships for their well-being and survival. Similarly, experiencing negative and motivating emotions when failing to make a good impression is viewed as adaptive. Leary (2010, p. 478) states that, "People who are never socially anxious do not work to regulate others' perceptions and evaluations of them and, as a result, tend to behave in ways that offend and alienate others." Hence, the experience of social anxiety is placed within a broader context of our species' need to belong, something that is intrinsically adaptive and necessary (Baumeister & Leary, 1995).

One of the most prominent differences between this and other models is that it does not posit that those with SAD are necessarily characterized by negative self-schemata or a fear of personal deficiencies; rather, social anxiety is a strategic problem that can result from a variety of beliefs and perceptions related to perfectionism, dependency, or negative self-image. It emphasizes that socially anxious individuals may be most concerned with failing to live up to the expectations of others, rather than believing that they have failed to live up to their own. As such, the model suggests that one affected person may benefit from therapy that targets a reduction of unrealistic standards, whereas another may benefit from therapy that addresses core beliefs about the self as inept or defective.

Reinforcement Sensitivity Theory

Kimbrel's (2008; Kimbrel, Nelson-Gray, & Mitchell, 2012) model of SAD is an extension of the revised Reinforcement Sensitivity Theory (RST; Gray & McNaughton, 2000), a biologically based theory of personality and psychopathology. Kimbrel

integrates a wide range of personality, biological, environmental, and cognitive factors into a unified model of SAD and links the functioning of three brain subsystems to the cognitive and behavioral processes addressed in other models of SAD.

RST explains behavioral tendencies as stemming from three major brain subsystems—the behavioral inhibition system (BIS), behavioral approach system (BAS), and fight-flight-freeze system (FFFS). Whereas the BAS underlies reward-seeking behavior and impulsivity, the FFFS motivates avoidance and escape behavior in response to dangerous or frightening stimuli. Finally, the BIS serves as the defensive approach subsystem, whose primary objective is to resolve conflicts involving approach–avoidance goals. This is accomplished by inhibiting behavior and increasing arousal and attention toward threatening cues. Not surprisingly, the BIS is heavily involved in the emotions of anxiety and the personality trait of neuroticism, both of which are associated with SAD (Gray & McNaughton, 2000).

According to this model, SAD is promoted (in both a distal and proximal sense) by high levels of FFFS and BIS sensitivity and, in some cases, lower levels of BAS sensitivity. The feared stimulus in social anxiety—*social engagement*—may be both rewarding and dangerous. Hence, both reward-seeking (BAS) and danger-avoiding (FFFS) behavioral systems come into play, along with the BIS, whose mission is to reconcile the two (Corr, 2002).

The distal component of the model explains that an individual's genetic inheritance may promote high BIS and FFFS sensitivity, which manifest in the early temperamental trait known as *behavioral inhibition* (BI). Infants with high BI experience increased arousal and anxiety in response to novel social situations and are at higher risk of developing SAD than their low-BI counterparts (Kagan, Reznick, & Snidman, 1987; Kagan, Snidman, Kahn, & Towsley, 2007; see **Chapter 7** of this volume). Subsequently, *sensitizing social experiences* (e.g., being teased by peers during childhood) may increase FFFS sensitivity by strengthening synaptic connections in the amygdala (Rosen & Schulkin, 1998), increasing the risk of developing SAD. In addition, generally stressful life experiences, such as being abused or separated from one's parents in childhood, may damage the hippocampus and other neural substrates of the BIS, leading to exaggerated stress and fear responses (and also increasing risk of developing SAD).

Other distal factors may be protective rather than harmful. Gaining exposure to habituating social experiences—such as attending frequent play dates in childhood—may result in decreased sensitivity of the BIS and FFFS, reducing the risk of developing SAD. Further, having high BAS sensitivity—typically associated with high levels of extraversion—is another protective factor incorporated into this model. The model stresses that common starting points can lead to multiple outcomes (i.e., not all infants with BI later go on to develop SAD) and there are multiple pathways to developing SAD (i.e., even those who do not manifest BI in infancy may go on to develop SAD if exposed to other risk factors).

The model's proximal components highlight the role of cognitive and behavioral factors. When someone with high BIS and FFFS sensitivity encounters actual or potential social situations, negative beliefs and expectancies about social situations emerge, along with increased inhibition and arousal. Further, attentional biases for threatening cues and memory biases for threat-relevant information are activated. The result is increased perception of threat, which fosters social anxiety and avoidance, and

sometimes poor performance. In turn, avoidance and feedback about one's negative social performance reinforce high levels of BIS and FFFS sensitivity. The individual now risks developing functional impairment and life interference associated with a clinical diagnosis of SAD.

Because the cognitive and behavioral components of this model overlap significantly with the cognitive-behavioral models discussed earlier (Clark & Wells, 1995; Hofmann, 2007; Moscovitch, 2009; Rapee & Heimberg, 1997), one may conclude that RST is simply an extension of cognitive-behavioral models. That is, the FFFS/BIS/BAS components may be seen as modular extensions that merely increase the primacy of cognitions and behaviors, which more centrally drive social anxiety. A key distinction, however, is that RST proposes that the information-processing biases seen in individuals with SAD are the "direct result of the hypersensitivity in the BIS and FFFS" (Kimbrel, 2008, p. 605). This distinction has important implications for intervention.

Cognitive-behavioral models emphasize that negative core beliefs about the self drive social anxiety, and as such, it is helpful to target such beliefs directly in therapy, via cognitive restructuring. In contrast, the RST model suggests that exposure therapy can lead directly to habituation of the BIS and FFFS, which will lead to a reduction of cognitive biases without the need for direct cognitive intervention. This premise is supported by some research showing that patients treated with exposure therapy alone experience reduced cognitive biases similar to those produced by cognitive restructuring interventions (e.g., Mattick, Peters, & Clarke, 1989). Moreover, medications that are able to reduce excitability in the BIS and FFFS circuits—such as selective serotonin reuptake inhibitors and benzodiazepines—have been shown to reduce cognitive biases (Harmer, Shelley, Cowen, & Goodwin, 2004; Otto & Safren, 2001).

Interpersonal Model of SAD

The interpersonal model of SAD emphasizes that social anxiety is, at its very core, an interpersonal disorder (Alden & Taylor, 2010; see **Chapter 8** of this volume). It posits that early social experiences, together with innate biological factors, foster certain beliefs about the self and others—termed *relational schema*—that increase negative expectations when interacting with others. In turn, these negative expectations lead to self-protective behaviors that typically involve some sort of avoidance or concealment of anxiety symptoms. This unwelcoming strategy disrupts healthy social exchanges and the formation of close relationships (Alden & Bieling, 1998; Plasencia, Alden, & Taylor, 2011). Ultimately, negative expectations about socializing are only strengthened when the individual fails to connect with others and to establish meaningful relationships. The social isolation and impairment in close relationships characteristic of those with SAD is understood to be one of the most painful and significant consequences of the disorder and one that only serves to perpetuate anxiety even further (Alden & Taylor, 2010).

Because the interpersonal model of SAD is discussed extensively in **Chapter 8**, we do not discuss it here in detail. However, we note that it is quite compatible with other cognitive-behavioral models of SAD, although it differs in emphasis. For example, whereas all models discussed in the present chapter highlight the roles that

negative beliefs about the self (e.g., "I am incompetent") and others (e.g., "they are excessively critical") play in the etiology and maintenance of SAD, other cognitive-behavioral models emphasize the intrapsychic nature of these "core beliefs," whereas interpersonal models highlight their relational nature. There is also a distinction in terms of emphasis. For the other cognitive-behavioral models, cognitive biases and negative core beliefs are a central driver of the maintaining processes of social anxiety, whereas for interpersonal models, interpersonal functioning fulfills this role.

The way that safety behaviors are incorporated into each model illustrates this distinction. Both interpersonal and other cognitive-behavioral models emphasize that individuals with SAD engage in strategies, such as avoiding eye contact or sharing little about the self, designed to avoid scrutiny and minimize evaluation by others. Moreover, both suggest that such behaviors serve only to exacerbate disordered processes in the long term. However, these models propose a different explanation as to why this is the case. Most cognitive-behavioral models posit that safety behaviors, like other forms of avoidance, prevent individuals from habituating to anxiety and disconfirming their beliefs about the risk of socializing more freely (Clark & Wells, 1995; Rapee & Heimberg, 1997; Wells et al., 1995). The interpersonal model, in contrast, focuses on how such safety behaviors disrupt the formation of relationships and the ability to connect meaningfully with others (Alden, 2001; Alden & Bieling, 1998).

Evolutionary/Psychobiological Models

Evolutionary or psychobiological models of social anxiety (e.g., Gilbert, 2001; see **Chapter 2** of this volume) start with the argument that humans are a social species who have needed to manage close affiliations within a group over time to survive, thrive, and reproduce. Group dynamics for social primates have often been characterized by some degree of hierarchy and competition, although cooperative behavior exists as well. Social anxiety is seen as an adaptive behavioral strategy when the individual sees a social situation as competitive and doubts his or her ability to compete successfully for a high-ranking position (Gilbert, 2001). If one cannot compete for a top position in the hierarchy, the next best thing is to avoid rejection or harm and to maintain one's current position. Hence, when an individual is threatened with the risk of losing social status, a host of submissive cognitions and behaviors are engaged to appease higher-ranked individuals. By keeping a low and non-aggressive profile, the individual may be able to maintain important connections without suffering loss of status.

The model posits that those with chronic and interfering social anxiety are particularly likely to see social situations as competitive and to hold negative beliefs about the self, such that they doubt their own ability to compete effectively for a high-ranking position. As a result, these individuals are most likely to adopt a submissive posture when socializing with others. Indeed, social anxiety is associated with lower perceived social self-ranking and submissive behaviors such as avoiding direct eye contact, being overly apologetic, and making few direct statements (Antony, Rowa, Liss, Swallow, & Swinson, 2005; Leary, 1983; Weeks, Rodebaugh, Heimberg, Norton, & Jakatdar, 2009). Further, social threats lead to increased submissive behavior among those with high social anxiety but not others (Weeks, Heimberg, & Heuer, 2011).

Many of the thoughts and behaviors described in evolutionary models of SAD parallel those described in cognitive-behavioral models. For example, both kinds of models discuss the presence of cognitions that characterize the self as unable, inept, and ineffectual. Further, the submissive behaviors described in psychobiological models overlap with the avoidance and safety behaviors discussed in cognitive-behavioral and interpersonal models alike. A key distinction, however, is that these models differ in the function these behaviors are proposed to serve. Whereas behaviors such as making poor eye contact and saying very little are thought to represent social skills deficits in some models and serve the function of anxiety reduction in others, the same behavior is seen as strategic within evolutionary models. That is, it serves the specific purpose of placating higher-ups and deescalating competition. Overall, for psychobiological models, there is a primacy placed on concepts related to social comparison and hierarchy, and further, on understanding the potentially adaptive functions of these inherited behavioral systems. In contrast, other models emphasize that underlying beliefs, automatic thoughts, and ongoing behaviors drive the cycle.

Looking Across the Models

Etiology and Developmental Perspectives

One of the main goals driving psychopathology research, and the development of theoretical models of different disorders, is to increase our understanding of human behavior, and another is to inform treatment. Etiological explanations for the development of psychopathology address both goals and have the potential to inform preventive interventions to curb the development of a disorder in high-risk individuals. Furthermore, etiological considerations could lead to differentiating subgroups among those with the same disorder (Leary, 2001). For instance, a socially anxious individual whose onset of SAD was preceded by adolescent bullying experiences may look different from someone who exhibited severe social anxiety as a very young child. However, not all theoretical models of SAD emphasize etiological explanations to the same degree.

The primary etiological question for cognitive behavioral theorists is *why* and *how* cognitive biases develop. Relative to Clark and Wells (1995) and Rapee and Heimberg (1997) paid more attention to etiological considerations when describing their model. Rapee and Heimberg (1997) speculated that SAD develops through an interaction of genetic predisposition and childhood environmental factors (e.g., parenting practices and modeling of behavior). For instance, a person who goes on to develop SAD may be more genetically predisposed toward an inhibited approach to the world (i.e., biased toward threat cues). In addition, the person could receive messages from caregivers that other people's opinions matter greatly, leading to the development of beliefs that negative evaluation is highly probable and undesirable. Recent attention is also being given to the role of emotion dysregulation in SAD (e.g., Heimberg et al., 2010); it is likely that future etiological explanations from a cognitive-behavioral framework will address how emotion dysregulatory patterns develop.

Among the models reviewed, the model based on RST (Kimbrel, 2008) emphasizes etiological factors most heavily. A strength of this model is that it provides clear hypotheses regarding the interaction between genetic and environmental factors that lead to the development of SAD in some individuals. Another strength is that it offers suggestions about ways to intervene with at-risk individuals before they develop SAD.

Closely related to the question of etiology is whether theoretical models of SAD developed on the basis of research with adults apply to children and adolescents, a question that has received little examination. Hodson, McManus, Clark, and Doll (2008) examined whether the Clark–Wells model could be applied to young people. They measured levels of social anxiety, social safety behaviors, social cognitions, post-event processing, self-focused attention, and depression in 171 students between the ages of 11 and 14 years. Individuals were categorized into high, middle, or low social anxiety groups, based on their scores on the social anxiety measure. The high social anxiety group scored significantly higher on the five variables associated with the Clark–Wells model, compared with the middle and low social anxiety groups. Although the five variables predicted both depression and social anxiety, they were more strongly predictive of social anxiety. Results support the applicability of the model to young people with SAD. Further research is needed to examine how this model and others map onto childhood SAD and whether SAD treatments developed for adults can be translated for use among children and adolescents. Moreover, integrating the adult and child research literatures will help everyone better understand SAD. For more on social anxiety in children and adolescents, see **Chapter 9** of this volume.

Discrepancy as the Key

Across most models, a core feature proposed to drive SAD is a discrepancy between a person's perception of the demands of the social world and his or her perceived ability to meet those demands. In Leary's (2001, 2010) self-presentational model and the cognitive-behavioral models of Clark and Wells (1995) and Hofmann (2007), the discrepancy is between the individual's desire to live up to other people's standards and the perception that he or she is unable to do so. Stated slightly differently, Rapee and Heimberg (1997) posit that the discrepancy is between perceptions of others' expectations and the person's mental representation of the self as seen by the audience. Moscovitch (2009) similarly sees the core difficulty in SAD as the fear that the self is deficient in meeting societal expectations. Lastly, evolutionary models (Gilbert, 2001) describe a tendency to see social situations as competitive and a related discrepancy between beliefs about what is necessary to compete for high social status and one's perceived ability to do so.

Social Anxiety: An Adaptive and Normative Process?

Underlying any theoretical approach to SAD is an assumption about whether social anxiety is a normative process. A closely related question is whether we conceptualize social anxiety as existing on a continuum. The theories we have reviewed vary in the extent to which they address this question. Rapee and Heimberg (1997) addressed

it directly in their discussion of the distinction between shyness, SAD, and avoidant personality disorder. They take the position that the three labels represent differing degrees of evaluative concern, with shyness representing the low to middle range of the continuum, SAD the middle to upper range, and avoidant personality disorder the upper to extreme end. Thus, social anxiety is viewed as something that mostly everyone experiences, though to differing degrees. From a treatment standpoint, presenting social anxiety as normative helps patients understand that eliminating anxiety (a commonly expressed goal among patients) is not feasible. Talking about social anxiety in this way can also reduce self-stigma about the diagnosis and perhaps foster acceptance of this perceived "flaw." Another implication is that our existing models and treatments can be applied to those diagnosed with avoidant personality disorder.

Perhaps a more provocative argument than the one discussed above is the assertion that social anxiety is, at the low end of the continuum, an *adaptive* process, as suggested by the evolutionary model (Gilbert, 2001). As mentioned earlier, the self-presentation model (Leary, 2001, 2010) also asserts that concern about others' evaluation of us aids in the development and maintenance of stable relationships. The importance of considering social anxiety as adaptive is that it pushes us to consider the function of social anxiety. With SAD patients, we can then help them delineate when social anxiety is adaptive and when it is maladaptive in their lives.

SAD: An Intrapersonal and Interpersonal Disorder

Cognitive-behavioral models of SAD are largely intrapersonal ones. However, many individuals with SAD experience interpersonal dysfunction. They have fewer friends and dating partners (Rodebaugh, 2009; Wenzel, 2002; Whisman, Sheldon, & Goering, 2000) and are less likely to get married than individuals with other anxiety disorders (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). They are also more likely to report perceived friendship impairment (Rodebaugh, 2009) and reduced quality of their romantic relationships (Sparrevohn & Rapee, 2009). Interpersonal impairment is not surprising, given that the disorder is defined by how a person perceives and acts in response to other people; the avoidance of social situations would make it more difficult to establish and maintain relationships. Of the models reviewed in this chapter, the self-presentation model (Leary, 2001, 2010) and interpersonal model (Alden & Taylor, 2010) are the ones that examine the disorder from the lens of how socially anxious individuals relate to others. All SAD models describe dysfunctional processes that can occur when socially anxious people interact with those they are closer to as well as with complete strangers. However, the self-presentation and interpersonal models of SAD have a greater focus on relationships with important others and on impairment in the development of deeper, meaningful connections with others. A strength of both models is that they better integrate our understanding of dysfunctional intrapersonal and interpersonal processes in SAD. For example, although the authors of these models do not use this particular language, their models provide a framework for discussing cognitive biases and distortions about relationships.

Summary and Future Directions

The review of the current models of SAD reveals that our thinking and understanding of the disorder has come a long way since it was formally recognized in 1980. However, further refinement of our theories is, of course, always warranted so that our models can remain fruitful for research. We have discussed several theoretical models and examined the similarities and differences among them. The next step would be to continue to evaluate the empirical support for these models, as well as test aspects of these models that differ from each other.

Note

1. Clark and Wells (1995) refer to their model as "cognitive," whereas we refer to all models described in this chapter as "cognitive behavioral." This may seem like a bit of semantics, but we think it is important to recognize explicitly that both cognitive and behavioral processes play a major role in all of these conceptual models.

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