Chapter 3

Assessment of Social Anxiety and its Clinical Expressions

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Social anxiety is a universal phenomenon. At any given time, for any given individual, one's degree of social anxiety may vary from fearless at one extreme to debilitating anxiety and avoidance at the other. When the level of anxiety, avoidance, and impairment in functioning reaches clinical proportions, a diagnosis of social anxiety disorder (SAD), also known as social phobia (SP) and possibly avoidant personality disorder (APD), is made. Unfortunately, such diagnostic categories are often reified, and the underlying dimensional continuity of social anxiety is overlooked. There is currently no compelling reason to believe that social anxiety and SAD differ qualitatively (Jørstad-Stein & Heimberg, 2009; Rapee, 1995). Indeed, taxometric analyses suggest that a dimensional conceptualization of social anxiety better fits epidemiological data than a categorical diagnostic model (Ruscio, 2010). Hence, the assessment methods described here can be used for assessing subdiagnostic social anxiety as well as SAD per se.

Careful and thorough assessment is critical to treatment planning and clinical research. Assessment measures for social anxiety have typically been divided into two broad groups: behavioral assessment methods (Arnkoff & Glass, 1989; McNeil, Ries, & Turk, 1995), which include role-playing procedures and self-monitoring, and cognitive assessment procedures (Arnkoff & Glass, 1989; Elting & Hope, 1995; Heimberg, 1994), including thought-listing and information-processing paradigms. Although this is a useful organization scheme, it also has its drawbacks. Primary among these is the fact that whether any given measure is considered a behavioral or a cognitive assessment procedure is more a function of one's theoretical perspective than of the measure itself. Depending on one's perspective, self-report questionnaires, for example, may be viewed as measures of behavioral symptoms comprising a clinical syndrome or of a cognitive theoretical construct central to the etiology of that syndrome.

In this chapter we have elected to organize the various assessment procedures according to the methodology of the procedure. Many of the tools

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described can be used for different purposes depending upon one's goals (e.g., treatment planning in a clinical context, psychopathology research) and one's theoretical orientation (e.g., behaviorist, mediational, cognitivist). The first section describes the clinical interview, with particular attention to structured clinical interviews. This is followed by a review of the most commonly used self-report questionnaires for social anxiety. Role-playing procedures are then described, followed in turn by self-monitoring and thought-listing techniques. Finally, psychophysiological assessment is discussed briefly. We limit our review to instruments and procedures that are commonly used either in clinical settings or in treatment outcome research. Procedures developed specifically to test hypotheses in experimental psychopathology research are beyond the scope of this chapter. For example, in addition to measuring cognitive content through questionnaires or thought-listing procedures, there has recently been a growing emphasis on the measurement of cognitive processes. This literature employs various information-processing paradigms in an effort to elucidate cognitive processing anomalies, unique to social anxiety (e.g., Anderson et al., 2013; Amir, Beard, Burns, & Bomyea, 2009; Beard, Sawyer & Hofmann, 2012; Kuckertz et al., 2014; Schmidt, Richey, Buckner, & Timpano, 2009). Interested readers are referred to Amir and Bomyea (2010), Elting and Hope (1995), and Heimberg (1994) for reviews of such procedures. Although our primary focus is on adults, we briefly review issues pertaining to the assessment of social anxiety in children and adolescents, as well as instruments developed specifically for these populations.

THE CLINICAL INTERVIEW

The clinical interview is by far the most common assessment method of SAD or any other form of psychopathology for that matter. Clinical interviews vary along as many dimensions as there are interviewers. For example, some clinicians use a highly directive, structured format, whereas others prefer a more unstructured, free-flowing approach.

Regardless of style, there are typically three goals of the clinical interview when working with persons with social anxiety: (1) establishing rapport, (2) accurate diagnosis, and (3) assessment of symptom patterns, phobic stimuli, and impairment in functioning. The clinical interview is generally the first contact the patient has with the therapist or researcher, and as such the development of a good working rapport is critical. Although this is true with any patient, the nature of social anxiety presents special challenges to this task. It is difficult to overstate how difficult the first interview is for most persons with high social anxiety. These individuals rarely realize how common their problems are, believing they are unique and perhaps even "crazy." In addition, they often fear being judged negatively by the interviewer and are vigilant for signs of disapproval. Given the chronic, unremitting nature of SAD, individuals frequently have come to view the condition as a fundamental part of who they are and,

therefore, have difficulty recognizing the ways in which their functioning has become impaired.

We recommend several strategies for interviewing persons with social anxiety. First, the clinician may begin the interview with a period of small talk to break the ice. Although open-ended questions are often preferred in clinical interviews (Greist, Kobak, Jefferson, Katzelnick, & Chene, 1995), we suggest frequently using simple closed-ended questions to help put at ease persons with social anxiety. It is especially important, however, that the interview not be perceived as interrogation. The pace of the interview often needs to be slowed; we typically allot at least two hours for an initial interview. It is critical that the interviewer avoid signs that he or she is disapproving of something the patient says. Initial interviews with socially anxious children and adolescents can be especially challenging. We recommend beginning the initial session with some naturalistic activity away from the consultation office (e.g., an impromptu walk to purchase a drink from a vending machine), a strategy that often provides a valuable entrée into the interview process.

For adults, obtaining sufficient and reliable information to make a diagnosis according to standard criteria outlined in the most recent fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013) is typically not problematic, because socially anxious adults are generally adequate informants regarding their own symptoms and the DSM-5 criteria for SAD are relatively straightforward. Such is not the case with children and adolescents, however, because they tend to under-report symptoms. Obtaining information from parents and teachers is often helpful once the child has been identified as having a problem. Unfortunately, initial identification of social anxiety in children is often difficult. In fact, SAD in children and adolescents frequently goes unnoticed by parents and school personnel alike, not being recognized unless it results in frequent school absences or outright school refusal (Kashdan & Herbert, 2001; Kearney & Albano, 2004).

The most common diagnostic dilemmas involve misdiagnosing SAD as agoraphobia and failing to recognize comorbid conditions. SAD is often misdiagnosed as agoraphobia when socially anxious individuals (SAIs) avoid so many situations that they spend a great deal of time at home. Although there is some evidence that the pattern of physiological symptoms tends to differ between the two conditions (Amies, Gelder, & Shaw, 1983), the critical distinction is made on the basis of the nature of the underlying fear. In the case of social anxiety the primary fear is of humiliation and negative evaluation by others, whereas in the case of agoraphobia it is the fear of having a panic attack. Diagnostic comorbidity with SAD is the rule rather than the exception (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). Among the most common comorbid diagnoses are major depression, substance abuse, and APD. In the case of depression, it is important to clarify the relationship between the two conditions over time. If the symptoms of anxiety clearly preceded the onset of depression, a separate diagnosis of SAD may be warranted. If the anxiety covaries with

the other symptoms of depression, the anxiety may be conceptualized as part of the depressive episode. Alcohol abuse among individuals with social anxiety is common, as many have learned to use alcohol prior to and during social situations to alleviate anxiety. Finally, the relationship between SAD and APD has been the subject of much debate (Huppert, Strunk, Ledley, Davidson, & Foa, 2008; Kose et al., 2009; Widiger, 1992). Although there appears to be little theoretical or empirical justification for qualitative distinctions between the two diagnostic categories, the DSM-5 rules permit both diagnoses to be made concurrently when their respective criteria are met.

Accurate diagnosis is only the beginning of the assessment process. There is substantial heterogeneity among persons with social anxiety, which is reflected in patterns of cognitive and physiological symptoms and behavioral avoidance, the stimulus parameters that elicit anxiety, and the degree of social and vocational functional impairment. A good clinical interview reviews each of these areas to generate a complete picture of the individual's clinical status. The construction of a fear hierarchy—a list of phobic social situations in order of degree of anxiety elicited and degree of avoidance—is especially important as a prelude for behaviorally oriented treatments.

Structured Interviews

Unstructured interviews are most commonly used in clinical practice, whereas structured interviews are more commonly used in research contexts. There is, however, a growing awareness of the utility of structured interviews in nonresearch clinical settings. Zimmerman and Mattia (1999) found that diagnostic rates of SAD based on structured interviews were nine times higher than rates based on unstructured interviews, suggesting that the former greatly reduce the rates of false-negative judgments. Structured interviews render the interview process awkward and rigid, but in our experience, in the hands of a skilled interviewer, the process can be as smooth and seamless as traditional unstructured approaches.

The most commonly used structured interviews for social anxiety are the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV) (Brown, DiNardo, & Barlow, 1994) and the Structured Clinical Interview for DSM-IV (SCID-IV) (First, Spitzer, Williams, & Gibbon, 1997). Both of these instruments are based on the criteria outlined in the revised fourth edition of the DSM, published in 1994. The fifth edition of the DSM was recently published, and only minor changes were made to the diagnostic criteria for SAD. Although the terms SAD and SP continue to be used synonymously, the default term is now SAD in the DSM-5. This term better captures the pervasive nature of the typical presentation of clinical social anxiety. Moreover, the term SAD appears to result in greater recognition of the need for treatment by the public than the term SP (Bruce, Heimberg, & Coles, 2012). The most important changes were removal of the criterion requiring that individuals over 18

years old recognize that their symptoms are unreasonable, and addition of the requirement that symptoms be present for at least six months for both adults and children (in the DSM-IV, the duration requirement applied only to children). Zimmerman, Dalrymple, Chelminski, Young, and Galione (2010) found that less than 1% of individuals who met criteria for SAD would have failed to do so on the basis of not recognizing their symptoms as being excessive or unreasonable, so this feature did not add to diagnostic accuracy. In addition, the "generalized" subtype was eliminated, and a "performance only" subtype was added. In order to be consistent with the newly revised DSM-5, the ADIS-IV has recently been revised as the Anxiety and Related Disorders Interview Schedule for DSM-5 (ADIS-5; Brown & Barlow, 2014). Likewise, the SCID is currently undergoing revision, and the "research version" of the instrument based on DSM-5 criteria (i.e., the SCID-5-RV) is scheduled to be released in the spring of 2014. Another well-known structured clinical interview is the Schedule for Affective Disorders and Schizophrenia (Spitzer & Endicott, 1978), although it is rarely used as the primary diagnostic tool for anxiety disorders, and is not, to our knowledge, currently under revision. Because the DSM-5 was only recently published, the research to date on the ADIS and SCID involve the editions based on the DSM-IV (i.e., the ADIS-IV and the SCID-IV). Given the relatively minimal revisions to the diagnostic criteria for SAD in the DSM-5, the research on these instruments will, for the most part, continue to be relevant in the era of the DSM-5.

Although the ADIS also yields mood disorder diagnoses and screens for somatoform, psychotic, and substance use disorders, it is designed primarily to make distinctions among the various mood and anxiety disorders. The ADIS is especially useful in evaluating social anxiety because it provides symptomatic information beyond that which is required to make a diagnosis. For example, the interviewer makes ratings of fear and avoidance related to various common social situations (e.g., speeches, initiating conversations). Child and parent versions of the ADIS have also been developed (Albano & Silverman, 1996; Silverman & Nelles, 1988). The SCID organizes classes of disorders into separate modules and is geared toward eliciting sufficient information to make accurate diagnoses across all psychiatric syndromes, without special attention to any particular spectrum of psychopathology. The SCID does not prompt the interviewer to routinely query about as many social situations as the ADIS, and there is some evidence that supplementing the SCID with additional prompts regarding more social situations can improve diagnostic accuracy, particularly in the reduction of false-negative judgments (Dalryple & Zimmerman, 2008). Both the ADIS and the SCID require training to ensure proper administration and interpretation. The SCID is widely viewed as the gold standard for diagnostic purposes in clinical research studies of anxiety disorders (e.g., Kessler et al., 2006; Shear et al., 2000; Steiner, Tebes, Sledge, & Walker, 1995), and there is every reason to believe that the SCID-5-RV will continue this pattern.

Several studies have evaluated the test-retest and inter-rater reliability of the SCID and the ADIS, although most of these were conducted with earlier versions of the instruments that were linked to the DSM-III or DSM-III-R. One exception is a study of the SCID-IV by Ventura, Liberman, Green, Shaner, and Mintz (1998), which found excellent inter-rater reliability on assessments of symptoms across a variety of disorders (overall kappa = 0.85) following extensive training of interviewers. In addition, a telephone version of the social anxiety module of the SCID-IV was found to be comparable to the in-person interview, and demonstrated good test-retest reliability (Crippa et al., 2008). Several other studies examining the differential diagnosis of various disorders have found moderate to high test-retest and inter-rater reliability for the SCID-III-R (Malow, West, Williams, & Sutker, 1989; Riskind, Beck, Berchick, Brown, & Steer, 1987; Segal, Hersen, & Van Hassalt, 1994; Stukenberg, Dura, & Kiecolt-Glaser, 1990; Williams et al., 1992). Good test-retest reliability of DSM-IV ADIS-C/P diagnoses has been demonstrated in a clinical sample of adolescents (Silverman, Saavedra, & Pina, 2001). Regarding the diagnosis of SAD specifically, Skre, Onstand, Torgersen, and Kringlen (1991) obtained a kappa of 0.72 for inter-rater reliability using the SCID-III-R. Williams et al. (1992) obtained a more modest kappa of 0.47 for test-retest reliability of SAD using the DSM-III-R.

Few studies have evaluated the psychometric properties of the ADIS-IV. However, good inter-rater reliability has been found for the ADIS-IV SP module (kappa = 0.77), as well as for dimensional ratings of SP symptoms on scales of fear and avoidance (Pearson r = 0.86 for both dimensions; Brown, DiNardo, Lehman, & Campbell, 2001). Di Nardo, Moras, Barlow, Rapee, and Brown (1993) evaluated the reliability of an earlier version of the instrument, the ADIS-R, which is based on the DSM-III-R. Di Nardo et al. (1993) found excellent diagnostic inter-rater reliability in a sample of 267 anxiety clinic outpatients. Furthermore, excellent inter-rater reliability was found for the diagnosis of SAD (kappa = 0.66). The Parent and Child versions of the ADIS-R have been demonstrated to have excellent test-retest and inter-rater reliability across anxiety disorder diagnoses, including SAD (Rapee, Barnett, Dadds, & Evans, 1994; Silverman & Eisen, 1992; Siverman & Nelles, 1988; Silverman & Rabian, 1995).

The World Health Organisation Composite International Diagnostic Interview (CIDI; Robins et al., 1988) is a structured interview based on the criteria outlined in both the DSM and the International Classification of Diseases. It was developed as an epidemiological tool, and is not typically used in clinical settings. Sunderland, Slade, and Andrews (2012) used a signal detection framework to develop a shortened version of the scale; initial data reveal excellent concordance between the original and shortened versions. The number of items comprising the SP section of the scale was reduced from 56 in the original CIDI to 20 in the abbreviated version. The utility of the abbreviated CIDI in clinical and research settings awaits further research.

INTERVIEWER-RATED SCALES

Liebowitz (1987) developed an interviewer-rated scale for measuring the severity of SAD symptoms; the Liebowitz Social Phobia Scale (LSPS). This 24-item scale requires the interviewer to make separate ratings of fear and avoidance for a range of social situations. Items are divided into social/interactional situations (13 items) and performance situations (11 items). Each item is rated for fear and avoidance on a 4-point Likert scale. The interview yields five scores: an overall severity rating, performance fear, performance avoidance, social fear, and social avoidance.

The scale has become the most popular clinician-rated assessment instrument in clinical trials of SAD, particularly pharmacological trials, and has been shown to demonstrate good treatment sensitivity (e.g., Adler et al., 2009; Book, Thomas, Randall, & Randall, 2008; Koszycki, Benger, Shlik, Bradwejn, 2007; Lipsitz et al., 2008). The scale has been shown to have good internal consistency (Heimberg & Holaway, 2007; Heimberg et al., 1999) and good concurrent validity with other measures of social anxiety (Davidson et al., 1991). With respect to specific populations, the scale has demonstrated strong internal consistency and temporal stability among African Americans (Beard et al., 2011), and English-Speaking Latinos (Beard, Rodriguez, Weisberg, Perry, & Keller, 2012). Despite now being the most widely used interviewer-rated scale of social anxiety; however, the LSPS was not developed empirically, nor was the derivation of the two subscales. In fact, it is not clear on what basis many of the items were categorized as "social" versus "performance," and this distinction appears to lack face validity for some items. Indeed, research indicates that the two subscales are highly correlated, calling into question their distinctiveness and clinical utility (Heimberg & Holaway, 2007; Heimberg et al., 1999; Oakman, van Ameringen, Mancini, & Farvolden, 2003). Moreover, Safren et al. (1999) found the original subscales to be a poor fit to the data and proposed four factor analytically derived subscales: public speaking, social interaction, observation by others, and eating/drinking in public. Heimberg and Holaway (2007) found that two of these subscales (public speaking and social interaction) discriminated between patients with SAD, patients with generalized anxiety disorder (GAD), and nonpatients. Beard et al. (2012) found less overlap among the Safren subscales than among the original subscales.

The LSPS is a useful clinician-rated measure of the severity of social anxiety symptoms. Further research is needed to clarify the instrument's factor structure and to assess the clinical utility of resulting subscales. Although the LSPS was originally designed as a clinician-rated measure, it has also been used as a self-report questionnaire. This application of the LSPS is described below.

Davidson et al. (1991) developed the Brief Social Phobia Scale (BSPS), another observer-rater instrument. The scale consists of seven items describing common social situations that are rated on both fear and avoidance, and four items measuring physiological symptoms. All ratings are made on 5-point Likert scales. Davidson et al. (1991) reported initial data supporting the test-retest reliability, internal consistency, and convergent validity of the instrument in a

clinical population. Davidson et al. (1997) provided further evidence for the psychometric properties of the BSPS in a sample of 275 individuals diagnosed with SAD. De Lima Osório, Crippa, and Loureiro (2010) found strong psychometric properties of a Brazilian Portuguese version of the scale. Like the LSPS, the BSPS has been used in a number of clinical trials of both pharmacotherapy (e.g., Emmanuel et al., 2000) and psychotherapy (e.g., Ledley et al., 2005), and is sensitive to treatment effects. Its strengths lie in its brevity and ease of administration, and its assessment of physiological symptoms.

Sorsdahl, Vythilingum, and Stein (2012) recently developed the Social Anxiety Screening Questionnaire (SAS-Q), a brief, three-item clinician-rated questionnaire for use in primary care settings. Although the SAS-Q had high specificity in a South African sample, its sensitivity was unacceptably low, suggesting that it does not discriminate SAD well from other anxiety and/or mood disorders.

The assessment of functional impairment has gained increased attention over the past few years. The most commonly used clinician-rated instrument used for anxiety disorders is the Sheehan Disability Scale (SDS; Leon, Olfson, Portera, Farbert, & Sheehan, 1997). This instrument consists of 11-point Likert ratings made by interviewers of current impairment in vocational, social/leisure, and family/home domains; the SDS is also sometimes used in a self-report format. It is widely used in pharmacological trials of SAD. Despite its common use, there is a paucity of data on its psychometric properties.

Other measures of functional impairment include the clinician-rated Disability Profile (DP) and its sister self-report scale, the Liebowitz Self-Rated Disability Scale (LSRDS; Schneier et al., 1994). Both of these instruments are designed to assess both current and lifetime impairment across multiple domains resulting from a specific disorder. The LSRDS consists of 4-point Likert scales that are rated for 11 domains of functioning, whereas the DP consists of 5-point Likert ratings of 8 of the 11 domains assessed by the LSRDS. Like the SDS, there are little psychometric data on either the DP or the LSRDS. A potential drawback of these measures is the difficulty distinguishing impairment associated with a specific disorder from impairment resulting from the other factors; this concern is even more problematic in the case of chronic conditions such as SAD. Hambrick et al. (2004) examined the psychometric properties of the SDS, DP, and LSRDS in a sample of patients with SAD (n = 153). All three scales demonstrated good internal consistency, and all three were correlated not only with one another but with symptom measures of depression, social anxiety, and quality of life. In addition, social anxiety accounted for variability in the scales above and beyond that attributable to depression.

SELF-REPORT MEASURES

Self-report questionnaires are extremely useful in the assessment of social anxiety. On a practical level, questionnaires are efficient, requiring little time to administer and score. They can be administered repeatedly over time to evaluate

the ongoing effects of treatment. Theoretically, questionnaires reduce an important source of error variance by eliminating the need for the clinician to interpret patient responses.

Several self-report instruments have been developed specifically to assess social anxiety. These can be divided into three broad groups. The first consist of instruments designed to measure directly specific symptoms of social anxiety or SAD. The second group is comprised of measures of theoretically derived components of social anxiety. Finally, instruments have been recently developed to assess social anxiety and related constructs among children and adolescents. The most commonly used of each of these three groups of instruments are reviewed next.

GENERAL MEASURES OF SOCIAL ANXIETY AND SOCIAL ANXIETY DISORDER

Liebowitz Social Phobic Scale—Self-Report

As noted above, although originally designated as a clinician-administered instrument, the LSPS has been increasingly used in a self-report format. Research indicates that the clinician-administered LSPS and the self-report version (LSPS-SR) are highly correlated and yield comparable means for both clinical and nonclinical groups (Baker, Heinrichs, Kim, & Hofmann, 2002; Fresco et al., 2001). Rytwinski and colleagues (2009) found that the LSPS-SR could distinguish patients with the generalized versus non-generalized subtypes of SAD, and both of these from nonpatient controls, using the same cut-off scores as the clinician-administered LSPS, derived by Mennin et al. (2002).

Social Phobia and Anxiety Inventory

Turner, Beidel, Dancu, and Stanley (1989) developed the Social Phobia Anxiety Inventory (SPAI), an empirically derived self-report instrument to assess the critical features of SAD. Although the SPAI consists of 45 items, several of these require multiple responses, thereby actually resulting in a total of 109 items. The SPAI was systematically constructed according to the behavioral-analytic model of Goldfried and D'Zurilla (1969). The measure assesses specific somatic symptoms, thoughts, and behaviors—including avoidance and escape behaviors—across a range of potentially distressing social situations. A 7-point Likert-scale format is used to assess severity of distress and functional impairment.

The instrument consists of two subscales: a 32-item SP subscale and a 13-item agoraphobia subscale. Twenty-one of the 32 SP subscale items assess degree of distress in various social settings, requiring four separate ratings based on the presence of four different audience groups (strangers, authority figures, opposite sex, and people in general). The SP subscale assesses the specific symptoms of social anxiety, whereas the agoraphobia subscale assesses fear in situations typically avoided by agoraphobics (e.g., crossing streets, waiting

in lines, public transportation). Subtracting the agoraphobia subscale from the SP subscale determines a difference subscale score. The necessity of calculating this difference score is based upon theoretical and empirical findings of the overlap among anxiety disorders, particularly the overlap between agoraphobia and SAD (Turner, Beidel et al., 1989). However, the issue of how best to score the SPAI has been a matter of debate. Herbert, Bellack, and Hope (1991) argue that the SP subscale may be a better index of social anxiety symptoms than the difference subscale, and they caution that using the difference score may produce false negatives in individuals with symptoms of both agoraphobia and SAD (Herbert, Bellack, Hope, & Mueser, 1992). Beidel and Turner (1992), however, maintain the superiority of the difference subscale.

In their initial description of the instrument's development, Turner, Beidel et al. (1989) present data supporting the test-retest reliability and internal consistency of the SPAI over a two-week period. In addition, the SPAI was found to successfully discriminate social phobic individuals from individuals with other anxiety disorders. In a study investigating concurrent and external validity, Beidel, Turner, Stanley, and Dancu (1989) found that the SPAI was capable of discriminating social phobic patients from controls and accurately predicting distress in daily social encounters. In fact, Peters (2000) found that the SPAI showed the best predictive and discriminative properties compared to other widely used SAD measures. Beidel, Turner, Stanley, et al. (1989) also found a moderate correlation between the ratings of a significant other and the individual's own rating of distress. In addition, the SPAI has been shown to demonstrate adequate concurrent validity and specificity with respect to other measures of social anxiety and related constructs and measures of other forms of psychopathology in a clinic sample (Herbert et al., 1991; Turner, Stanley, Beidel, & Bond, 1989). The SPAI shows adequate concurrent validity with respect to the self-monitoring of daily social behaviors, somatic responding, and avoidance behaviors in a clinical SAD sample when engaged in an anxiety-producing task (Beidel, Borden, Turner & Jacob, 1989).

The SPAI has been demonstrated to be a useful measure of treatment outcome (Beidel, Turner, & Cooley, 1993). Taylor, Woody, McLean, and Koch (1997) found the SPAI to be more sensitive to treatment effects relative to several other measures. In addition to its usefulness as a research tool, the SPAI is especially useful in clinical contexts because it not only provides a global index of social phobic symptomatology but also reviews distress and avoidance associated with various common social situations. Such specificity is useful in determining targets for treatment. In addition, the SPAI has been shown to be sensitive to treatment effects (e.g., Beidel et al., 1993; Herbert et al., 2005; Hofmann et al., 2006). Use of the SPAI has spread worldwide as non-English versions have been developed, including Portuguese and Spanish language versions (Picon et al., 2006; Olivares et al., 2002; respectively). Strengths of the SPAI include its strong psychometric properties and detailed assessment of specific phobic situations.

The primary limitation of the SPAI is its relatively long length, taking 20-25 minutes to complete (Tharwani & Davidson, 2001). To address this concern, Roberson-Nay, Strong, Nay, Beidel, and Turner (2007) developed an abbreviated 23-item version of the scale. The SPAI-23 showed high correlations with the original SPAI in both undergraduate and clinical samples (Roberson-Nay et al., 2007). Schry, Roberson-Nay, and White (2012) found that the SPAI-23 had excellent internal consistency, test-retest reliability, convergent, divergent, and discriminant validity in a large sample of college students. Moreover, a factor analysis supported the distinction between the SP and AG subscales. Although more research is needed, it appears likely that the SPAI-23 will retain the advantages of the original SPAI while its brief format will make it much more practical in both clinical and research settings.

Social Interaction Anxiety Scale

The Social Interaction Anxiety Scale (SIAS) and its companion scale, the Social Phobia Scale (SPS), were developed in response to the need for instruments that assess various commonly feared social situations (Mattick & Clark, 1998). The development of the SIAS was based on the conceptualization that social anxiety occurs in two types of situations; those involving social interaction with others (e.g., initiating and maintaining conversation) and those involving being observed or scrutinized by others (e.g., giving a speech or eating in public; Liebowitz, 1987; Mattick & Clark, 1998). Each type of situation requires somewhat different skills, and a socially anxious person may fear one, the other, or both types of situations (Heimberg, Mueller, Holt, Hope & Liebowitz, 1992). The SIAS attempts to measure the first of the two concepts, social interaction anxiety. The SIAS consists of 20 items that are rated on a 5-point Likert scale ranging from "not at all characteristic of me" to "extremely characteristic of me." Items are self-statements describing reactions to social interactions in dyads or groups. A total SIAS score is generated by summing the ratings after reverse scoring three positively worded items.

The SIAS is supported by a variety of psychometric data. Mattick and Clark (1998) reported good test-retest reliability and internal consistency across five patient and control groups. Heimberg et al. (1992) reported similar test-retest reliability and internal consistency figures in a study with undergraduate students, community volunteers, and patients with SAD. The SIAS has also been found to be positively correlated with other anxiety measures (Habke, Hewitt, Horton, & Asmundson, 1997; Heimberg et al., 1992; Mattick & Clark, 1998). Scores on the SIAS were most highly correlated with indexes of social interactional anxiety (Heimberg et al., 1992). Studies examining discriminant validity have found that socially anxious patients scored higher on the SIAS than undergraduates and community controls as well as patients with a range of anxiety disorders (Heimberg et al., 1992; Holt, Heimberg, & Hope, 1992; Mattick & Clark, 1998; Rapee, Brown, Antony, & Barlow, 1992). Furthermore, comorbid diagnoses of mood or panic disorder (PD) did not affect SIAS scores

among social phobic patients; and additional diagnosis of GAD, however, was associated with higher SIAS scored (Brown et al., 1997). Factor analyses by Rodebaugh, Woods, Heimberg, Liebowitz, and Schneier, (2006) raised concerns about the reversed-scored items; similarly, Rodebaugh, Woods, and Heimberg (2007) present data suggesting that the reverse-scored items actually hinder the psychometric properties of the SIAS, and suggest omitting these items.

Social Phobia Scale

As noted previously, the SPS was developed by Mattick and Clark (1998) to measure anticipatory anxiety associated with being observed by others, anxiety when actually being observed, and anxiety felt when engaging in activities in the presence of others (e.g., eating, writing). The format of the SPS is similar to the SIAS: 20 items are rated on a 5-point Likert scale, with a total score being derived by summing the ratings. The psychometric properties of the SPS were investigated simultaneously with the SIAS. The SPS has been shown to demonstrate good test-retest reliability and internal consistency across various clinical and nonclinical groups (Heimberg et al., 1992; Mattick & Clark, 1998;). The SPS also shows good concurrent validity among patients with SAD, being positively correlated with various social anxiety scales and highly correlated with measures of performance fear (Brown et al., 1997; Habke et al., 1997; Heimberg et al., 1992; Mattick & Clark, 1998). Excellent discriminate validity of the scale has been shown in various studies. Socially anxious patients scored higher on the SPS than undergraduates and community controls as well as patients with a range of other anxiety disorders (Heimberg et al., 1992; Holt et al., 1992; Mattick & Clark, 1998; Rapee et al., 1992). Clinician-rated severity of social anxiety was moderately related to SPS scores, and additional diagnoses of mood or PD did not affect the SPS scores among socially anxious patients (Brown et al., 1997).

Both the SPS and the SIAS are sensitive to treatment effects (Mattick & Peters, 1988; Mattick, Peters, & Clark, 1989), although they appear to be less useful than the SPAI in reliably discriminating patients with SAD versus without (Peters, 2000). They are both clinically useful due to ease of administration and scoring and they survey a range of commonly feared social situations. The SPS and SIAS were developed concurrently based on the notion that social anxiety is comprised of fear of two types of situations (interaction and being observed), so the two measures can be considered subscales of one larger measure and are most useful when employed together. The SPS and SIAS have been translated into several languages (Sica et al., 2007; Ye, Qian, Lu, & Chen, 2007; Zubeidat, Salinas, Sierra, & Fernandez-Parra, 2007).

Fear Questionnaire

The Fear Questionnaire (FQ), developed by Marks and Mathews (1979), has been widely used both within the US and internationally as a screening tool

for anxiety. Like the other measures described in this section, the FQ has been translated into several languages (e.g., Eguchi et al., 2005; Kasvikis, Sotiropoulou, Mitskidou, Livanou, & Poulou, 2006). The measure comprises three sections. First, one is asked to list one's primary fear and rate how much situations associated with that fear are avoided. The second section, the Anxiety-Depression scale, consists of five items assessing general affective disturbances. The third section, also known as the Fear Questionnaire, is the main section of the measure and has the same name as the overall instrument. This has caused some confusion in the literature. Generally, the term FQ in the literature refers to this latter scale alone rather than the overall instrument.

The FQ consists of 15 items designed to assess avoidance behaviors associated with social situations, agoraphobia, and blood/injury phobia. Although a total phobia score can be derived from the sum of the items, the use of individual subscale scores is more common (Arrindell, Emmelkamp, & van der Ende, 1984).

The FQ demonstrates high test-retest reliability and good internal consistency (Marks & Mathews, 1979; Michelson & Mavissakalian, 1983; van Zuuren, 1988). The FQ also has shown good discriminate validity, with persons with agoraphobia and social anxiety being discriminated by their respective subscales, and both groups being distinguished from non-anxious individuals and persons representing other diagnostic groups (Cox, Swinson, & Shaw, 1991; Oei, Gross, & Evans, 1989; Oei, Moylan, & Evans, 1991). Confirmatory factor analyses of the FQ conducted in both social anxiety and agoraphobia samples also supported the discriminative validity of the measure (Cox, Parker, & Swinson, 1996; Cox, Swinson, & Parker, 1993; Lelliott, McNamee, & Marks, 1991). However, the instrument showed marginal diagnostic power to distinguish patients with anxiety disorders in a representative epidemiological sample (Hoyer, Becker, Neumer, Soeder, & Margraf, 2002).

The FQ has been used as a treatment outcome measure in multiple studies with various clinical samples. It is a brief and easy questionnaire to administer and score, leading to its wide clinical appeal. However, the FQ SP subscale only has five items and does not cover the broad range of situations that individuals with social anxiety may fear; nor does it incorporate all diagnostic criteria for SAD (Heimberg et al., 1992). Moreover, the FQ only assesses degree of avoidance, rather than degree of distress. This distinction is important because many individuals with SAD do not actually avoid phobic situations but instead endure them despite extreme distress.

Social Phobia Inventory

The Social Phobia Inventory (SPIN) was developed as a self-report companion to the interviewer-based BSPS (Connor et al., 2000). Like the latter instrument, the SPIN was designed to assess three components of social anxiety: subjective fear, avoidance behavior, and physiological symptoms. Each of 17 items is rated on a

5-point Likert scale. In their initial report on the SPIN, Connor and colleagues (2000) found that the scale demonstrated good internal consistency and test-retest reliability. It had good convergent validity, as demonstrated by high correlations with other measures of social anxiety (i.e., the Liebowitz Social Anxiety Scale (LSAS), BSPS, and the FQ SP subscale), and discriminant validity was supported by findings of no correlation with a measure of health status (i.e., the Medical Outcomes Study Short-Form 36). Furthermore, the SPIN reliably distinguished between patients with and without a diagnosis of SAD. Antony, Coons, McCabe, Ashbaugh, and Swinson (2006) provided further psychometric support for the SPIN, finding excellent internal consistency, test-retest reliability, and convergent and discriminant validity. The scale reliably distinguished patients with SAD from those with PD or obsessive compulsive disorder (OCD). In a factor analytic study of both undergraduate and clinical samples, Carleton et al. (2010) found support for a 10-item, three-factor solution, particularly in the clinical sample.

A number of studies have found the SPIN to be sensitive to treatment effects from both pharmacotherapy (e.g., Liebowitz, Mangano, Bradwejn, & Asnis, 2005) and cognitive behavioral therapy (CBT; e.g., Antony et al., 2006). It has been translated into several languages (De Lima Osório, Crippa, & Loureiro, 2009; Garcia-Lopez, Bermejo, & Hidalgo, 2010; Nagata, Nakajima, Teo, Yamada, & Yoshimura, 2013; Radomsky et al., 2006). The advantages of the SPIN are in its relative brevity, ease of scoring, and specific assessment of physiological symptoms.

Mini-SPIN and Mini-SPIN-R

Connor, Kobak, Churchill, Katzelnick, and Davidson (2001) derived a brief, three-item version of the SPIN as a screening instrument for generalized social anxiety disorder (GSAD). The three items ("Fear of embarrassment causes me to avoid doing things or speaking to people; I avoid activities in which I am the center of attention; Being embarrassed or looking stupid are among my worse fears") were chosen among those from the SPIN that demonstrated the biggest mean difference between patients diagnosed with SAD and non-socially anxious controls. Each item is rated on a 5-point Likert scale and ratings are summed to create a total score. In a large sample of managed care patients, Connor et al. (2001) demonstrated that the Mini-SPIN demonstrated strong sensitivity, specificity, and positive and negative predictive value in identifying patients with GSAD. Weeks, Spokas, and Heimberg (2007) extended these findings in a sample of individuals seeking cognitive behavioral treatment for social anxiety. They found that the Mini-SPIN had strong internal consistency. Discriminate validity was also found for the Mini-SPIN with a Brazilian university sample (De Lima Osório, Crippa, & Loureiro, 2007). De Lima Osório, Crippa, and Loureiro (2010) reported further support of the scale's discriminative, convergent, and divergent validity, and internal consistency in a sample of university students, healthy adults, and patients with SAD.

Aderka et al. (2013) used item-response theory to examine the psychometric properties of the SPIN in a large sample (n = 569) of patients with SAD. They found that three items (one involving fear of criticism, one avoidance of criticism, and one fear of being watched) best discriminated between levels of anxiety among this patient sample; they coined these three items as the "revised mini-SPIN" (mini-SPIN-R). The mini-SPIN-R evidenced psychometric properties that were at least as strong as the original mini-SPIN. It should be noted that the two measures were derived for different purposes; the mini-SPIN was developed as a screening tool, to discriminate clinically significant SAD from healthy controls, whereas the mini-SPIN-R was developed to assess levels of social anxiety among clinical samples. Aderka et al. (2013) recommend that researchers or clinicians needing to assess both functions use all six items (i.e., both the mini-SPIN and the mini-SPIN-R) as an efficient alternative to the full SPIN.

Social Anxiety Disorder Dimensional Scale

Among the criticisms of the categorical psychodiagnostic approach of the DSM is that psychopathology, including pathological anxiety, is inherently dimensional in nature. The measures described above seek to quantify the dimensional nature of various aspects of social anxiety. LeBeau et al. (2012) recently developed dimensional measures for each of the anxiety disorders in order to supplement the DSM-5 categories. The scales share a common format, each consisting of 10 items that are rated on 5-point Likert scales, indicating their frequency of occurrence over the past month. Research with both nonclinical and clinical samples suggests strong psychometric properties of the SAD, panic disorder, and generalized anxiety disorder scales, with somewhat weaker support for the specific phobia and agoraphobia scales (Beesdo-Baum et al., 2012; Knappe et al., 2013; LeBeau et al., 2012). The SAD scale, known as the Social Anxiety Disorder Dimensional Scale (SAD-D), may be an especially useful complement to the DSM-5 categorical diagnosis of SAD in both clinical and research contexts.

The Social Anxiety Session Change Index

Stressing the importance of a brief, simple measure that can be used to track session-by-session change in the treatment of SAD, Hayes, Miller, Hope, Heimberg, and Juster (2008) developed the Social Anxiety Session Change Index (SASCI). The self-report scale consists of four items, measuring anxiety in social or performance situations, avoidance of these situations, concerns about embarrassment or humiliation, and the degree to which anxiety interferes with social activities. Each item is rated on a 7-point Likert scale reflecting the degree of change from the beginning of treatment to that day; the score is the simple sum of each item rating. Hayes et al. (2008) reported that changes in the SASCI were associated with changes in FNE and clinician-rated improvement.

Clinically Useful Social Anxiety Disorder Outcome Scale

Dalrymple et al. (2013) recently developed the Clinically Useful Social Anxiety Disorder Outcome Scale (CUSADOS), a 12-item self-report measure. Respondents rate each item on a 5-point Likert scale indicating how well it describes them over the past week. Psychometric properties of the scale were examined in a large sample (n = 2415) of psychiatric outpatients, and reveal strong internal consistency, and test-retest, discriminant, and convergent reliability. Preliminary findings in a small sample (n = 15) of patients with comorbid SAD and depression suggest that the CUSADOS is sensitive to treatment effects. Advantages of the CUSADOS include its brevity and ease of scoring (a simple summation of the Likert ratings). The measure was designed to assess the severity of social anxiety among individuals already diagnosed with SAD, rather than as a screening tool designed to identify caseness. Further research is needed with other populations and in additional settings, and in particular with respect to assessing treatment effects. In addition, most of the items are cognitive in nature (e.g., "I was very afraid of being judged by others"), so it remains to be seen if the lack of more items reflecting the behavioral and physiological aspects of the SAD will be problematic. The CUSADOS appears very promising as a brief measure that may prove useful in both clinical and research settings.

MEASURES OF THEORETICALLY DERIVED COMPONENTS OF SOCIAL ANXIETY

The second group of self-report measures includes instruments that were developed to assess specific components of social anxiety. These measures are typically not used as primary indices of symptom severity, but rather as measures of theoretical constructs central to social anxiety.

Fear of Negative Evaluation Scale

The Fear of Negative Evaluation Scale (FNE) is a 30-item true-false self-report measure. The construction of the FNE was based on a theoretical understanding of the principle features comprising social anxiety (Watson & Friend, 1969), namely the experience of fear of and distress about social situations, avoidance of social situations, and a fear of provoking negative evaluations from others. The FNE was specifically designed to assess this concern over negative evaluation by others. Fear of negative evaluation was defined as "apprehension about others' evaluations, avoidance of evaluative situations, and the expectation that others would evaluate oneself negatively" (Watson & Friend, 1969, p. 499). Examples of FNE items include "I rarely worry about seeming foolish to others" (scored negatively) and "I am frequently afraid of other people noticing my shortcomings."

Through three experimental studies and one correlational study in college student populations, Watson and Friend (1969) showed that the FNE had

sufficient test-retest reliability and concurrent validity. Subsequent studies provided further support for the validity of the FNE (Friend & Gilbert, 1973; Smith & Sarason, 1975). The FNE has been frequently used in studies of social anxiety and SAD. Improvement in social anxiety symptoms following cognitive behavioral treatment has been associated with a reduction in FNE scores (Heimberg, Dodge et al., 1990; Hope, Herbert, & White, 1995). Nevertheless, as noted by Heimberg (1994), treatment-related changes in FNE scores are typically modest and not specific to type of treatment, owing to both the instrument's true-false format and the confounding of concern over negative evaluation with other symptoms of social anxiety in several items.

A brief version of the FNE scale was developed by Leary (1983) to increase the scale's utility. The Brief-FNE consists of 12 of the original 30 items. The response format was modified from the original true-false format to a 5-point Likert scale ranging from "not at all" to "extremely characteristic of me." The Brief-FNE correlates very highly ($r = 0.96$, $p = 0.001$) with the original FNE and demonstrates good test-retest reliability and internal consistency (Leary, 1983). The Brief-FNE continues to be used in outcome studies of SAD (e.g., Lipsitz et al., 2008). It is especially useful in clinical contexts because its brevity facilitates repeated administration and its Likert-response format may make it more sensitive to treatment effects.

Recent years have witnessed a resurgence of research on the Brief-FNE, which was sparked by concerns that the four reverse-scored items form a second factor, undermining the scale's theoretical unitary factor structure (Rodebaugh et al., 2004). Various modifications to the scale have been recommended, including dropping the reverse-keyed items (Rodebaugh et al., 2004) and rewording them in various ways (Carleton, McCreary, Norton, & Asmundson, 2006; Collins, Westra, Dozois, & Steward, 2005; Taylor, 1993). Carleton, Collimore, and Asmundson (2007) found that optimal fit with a unitary factorial structure was obtained with an eight-item version of the scale, which is composed of a combination of some of the original items plus some reworded items. However, in a subsequent study directly comparing the three variants of the Brief-FNE, Carleton, Collimore, McCabe, and Antony (2011) concluded that the Brief-FNE-Straightforward, an 8-item variant that includes the eight straightforwardly worded items from the original FNE, demonstrated the best psychometric properties and the least difference between genders.

Social Avoidance and Distress Scale

The SADS was constructed concurrently with the FNE (Watson & Friend, 1969) and was developed to encompass the authors' theoretical view of two of the three aspects that comprise social anxiety: the experience of distress and the deliberate avoidance of social situations. Physiological signs of anxiety or impaired performance were excluded from the scale. The SADS consists of 28 true-false items. Although the authors described two subscales (social

avoidance and social distress), these are rarely used in practice. Typical items include "I try to avoid talking to people unless I know them well" and "I often think up excuses in order to avoid social engagements" (Watson & Friend, 1969). Watson and Friend (1969) report data supporting the test-retest reliability and concurrent validity of the SADS.

Turner, McCanna, and Beidel (1987) administered both the SADS and FNE to a large group of patients diagnosed with various anxiety disorders and found that persons with SAD could not be distinguished from those with other anxiety disorders by either instrument, thereby questioning their discriminative validity. Turner et al. (1987) concluded that, although both the SADS and FNE appeared to be sensitive to anxiety and emotional distress as indicated by significant correlations with specific measures of depression and anxiety and general indexes of emotional distress, they lacked the ability to discriminate social anxiety from the other types of anxiety. Heimberg, Hope, Rapee, and Brunch (1988), however, argued that these results do not necessarily lead to the conclusion that the SADS and FNE measure general distress rather than social anxiety because social anxiety may be manifested in other anxiety disorders, and individuals with social anxiety are highly heterogeneous. Turner and Beidel (1988) responded by reaffirming their position that the SADS—specifically, that the key for one of the items (number 19)—was incorrectly reverse-scored. Hofmann, DiBartolo, Holaway, and Heimberg (2004) found that this error resulted in higher scores of central tendency relative to the correctly scored version, although the error does not appear to have significantly biased prior studies that have used SADS.

The popularity of the SADS has declined over the past two decades, most likely due to the development of arguably better measures of social anxiety symptoms, and questions regarding its discriminant validity. Users of the SADS should obviously be aware of the error in scoring instructions in the original publication.

Cognitive-Somatic Anxiety Questionnaire

The Cognitive-Somatic Anxiety Questionnaire (CSAQ) is a 14-item self-report measure designed to assess both cognitive and somatic symptoms of anxiety (Schwartz, Davidson, & Goleman, 1978). Individuals are asked to rate on a 5-point Likert scale the degree to which they typically experience a specific symptom when they are feeling anxious. The measure consists of a cognitive scale and a somatic scale, each of which is comprised of seven items. The cognitive scale describes unpleasant thoughts or ruminations about a feared situation, whereas the somatic scale is characterized by physical symptoms of anxiety. Scoring involves the summation of items for each scale and combining both scale scores to obtain a total score.

The CSAQ has received only limited psychometric support. Schwartz et al. (1978) developed the CSAQ to address the lack of face validity that existed in

the cognitive and somatic anxiety self-report measures during that time. Initial evidence of the utility of the CSAQ was shown in a retrospective study comparing CSAQ scores of individuals taking an exercise class with individuals taking a meditation class (Schwartz et al., 1978). The authors found that the meditators reported less cognitive and more somatic anxiety than did those in the exercise class. Later studies have shown the utility of the CSAQ in assessing the effects of relaxation treatments as well as in characterizing the patterns of symptomatology in chronic pain patients (DeGood, Buckalew, & Tait, 1985; Tercilla, 1981). Tamaren, Carney, and Allen (1985) found that the cognitive scale correlated with other cognitive self-report measures, whereas the somatic scale was associated with skin conductance levels produced in response to stress, thereby supporting the construct validity of the measure. DeGood and Tait (1987) found that, for males, CSAQ scores correlated significantly with several anxiety-related measures, but, for females, CSAQ scale scores correlated less consistently with other test scores. Results from two separate factor-analytic procedures support the cognitive and somatic dimensions of the CSAQ (Crits-Christoph, 1986; Steptoe & Kearsley, 1990). The two studies differed significantly, however, in the degree to which the two scales were correlated. The two-dimensional factor structure of the CSAQ is challenged by results of a factor analysis in an anxious sample in which four factors emerged: fear-laden conditions, autonomic arousal, general worries, and indecision/agitation (Freeland & Carney, 1988).

Heimberg, Gansler, and Dodge (1987) found the CSAQ to have good convergent and discriminant validity in a sample of individuals with SAD. The cognitive scale was associated with measures of anxiety and self-evaluation, thought-listing scores, and self-rated anxiety during a behavioral test. The somatic scale was related to heart rate during a four-minute behavioral simulation. The behavioral simulations were individualized to induce greater arousal. The two scales, as in previous studies with nonclinical populations, were significantly correlated. Although the CSAQ has been used in various clinical studies with social anxiety, its popularity has declined in recent years. The instrument may prove to be useful if further refinements result in less overlap between the scales.

Fear of Positive Evaluation Scale

The fear of negative evaluation has long been a central theoretical component of social anxiety. Both theory (e.g., Gilbert, 2001) and research (e.g., Weeks, Heimberg, & Rodebaugh, 2008) suggest that the fear of *positive* evaluation is likewise central to social anxiety. Positive evaluation, especially when conducted publically, invites social comparison and potential scrutiny. To measure this construct, Weeks et al. (2008) developed the Fear of Positive Evaluation Scale (FPES), a 10-item self-report measure. Each item (e.g., "It would make me anxious to receive a compliment from someone

that I am attracted to") is rated on a 10-point Likert scale as to how characteristic it is of oneself. Two reverse-scored items are included to check for response bias, but are not included in the overall score. Weeks et al. (2008) found strong support for the psychometric properties of the scale in a large sample of undergraduates (n = 1711). Subsequent psychometric studies in undergraduates (Weeks, Heimberg, Rodebaugh, & Norton, 2008) and clinical samples with SAD (Fergus et al., 2009; Weeks, Heimberg, Rodebaugh, Goldin, & Gross, 2012) were likewise supportive of the scale's psychometric properties.

Disqualification of Positive Social Experiences

Socially anxious persons often discount positive social experiences, attributing them to chance or to another person's exceptional kindness or even pity. Weeks (2010) developed the Disqualification of Positive Social Outcomes Scale (DPSOS) to assess this tendency. The scale is comprised of 13 items (including two reverse-scored items that are not scored) describing situations in which positive outcomes are attributed to others (e.g., "people will laugh at my jokes even if they aren't funny, simply because that is the polite thing to do"); each item is rated on a 10-point Likert scale reflecting how true it is of the respondent. Weeks (2010) reported preliminary support for the factorial validity, internal consistency, and construct validity of the measure.

Measures of Fear of Embarrassment

Several self-report scales have been developed to examine fears associated with embarrassment. These include the Embarrassability Scale (Modigliani, 1968), the Susceptibility to Embarrassment Scale (Kelly & Jones, 1997), and the Embarrassment Questionnaire (Sabini, Siepmann, Stein, & Meyerowitz, 2000). The Fear of Embarrassment by Others Scale (Gee, Antony, & Koerner, 2012) assesses fear associated with embarrassment by the behavior not of oneself, but of close others.

Fear and Avoidance of Eye Contact

The fear and avoidance of eye contact are well known features of social anxiety. Schneier, Rodebaugh, Blanco, Lewin, and Liebowitz (2011) developed the Gaze Anxiety Rating Scale (GARS) to assess this phenomenon. Respondents rate each of 17 items that describe common situations in which one might expect to make eye contact (e.g., "greeting an acquaintance passing by on the street") on fear and avoidance, using 3-point Likert scales. Preliminary data support the measure's psychometric properties, as well as its responsivity to treatment. Further study is needed to assess how well it is associated with objective measures of gaze behavior.

SELF-REPORT MEASURES FOR CHILDREN AND ADOLESCENTS

Recent years have witnessed a growing interest in children and adolescents who suffer from social anxiety (Kashdan & Herbert, 2001). Several clinical rating scales and self-report measures have been developed specifically for pediatric populations and used in treatment-outcome studies.

Liebowitz Social Anxiety Scale for Children and Adolescents

The Liebowitz Social Anxiety Scale for Children and Adolescents (LSAS-CA), based on the adult LSAS, was designed to assess a range of social situations and performance interactions that children and adolescents may fear (Masia-Warner et al., 2003). The measure consists of 24 items: 12 social interactions and 12 performance situations, which are rated on 0-3 Likert scales. Separate fear and avoidance ratings are assessed. Six subscale scores are computed, including Total Anxiety, Social Anxiety, Performance Anxiety, Total Avoidance, Social Avoidance, and Performance Avoidance. The LSAS-CA has shown high internal consistency and test-retest reliability (Masia-Warner et al., 2003). However, factor analyses indicate that anxiety and avoidance ratings are best explained by a two-factor solution: Social and School Performance (Storch et al., 2006). The LSAS-CA has been used in several treatment outcome studies with children and adolescents and demonstrated sensitivity to treatment effects (Masia-Warner et al., 2004). The instrument has also been used with non-English speaking populations, demonstrating good psychometric properties while being valued for its ease in scoring and interpretation (Olivares, Sánchez-García, & López-Pina, 2009).

Social Phobia and Anxiety Inventory for Children

Beidel, Turner, and Morris (1995) developed a version of the SPAI to be used with children older than seven and with adolescents—the Social Phobia and Anxiety Inventory for Children (SPAI-C). The SPAI-C is a 26-item self-report measure designed to assess distress in a range of potentially anxiety-producing situations, as well as the physiological, cognitive, and behavioral avoidance manifestations of anxiety. Like the SPAI, there are a number of items in the SPAI-C in which individuals rate their distress in various situations based on characteristics of the audience. The SPAI-C has been shown to have high two-week test-retest reliability, adequate reliability at 10 months, and high internal consistency (Beidel et al., 1995; Storch, Masia-Werner, Dent, Roberti, & Fisher, 2004). Confirmatory factor analyses supported the five-factor structure proposed by the original theoretical model (Storch et al., 2004; Aune, Stiles, & Svarva, 2008). Scores on the SPAI-C successfully differentiate socially anxious children from children with externalizing disorders or no disorders (Beidel, Turner, & Fink, 1996; Beidel, Turner, Hamlin, & Morris, 2000). Beidel et al. (1996) further found that the SPAI-C demonstrates adequate convergent

validity as determined by comparing scores to daily diary ratings of distress. In addition, the scale has been shown to have adequate concurrent validity, internal consistency, and test-retest reliability within a non-American sample (Aune et al., 2008; Cederlund & Öst, 2013; Gauer, Picon, Davoglio, da Silva, & Beidel, 2009). The SPAI-C has been used in several clinical trials (Beidel, Turner, Young, & Paulson, 2005; Compton et al., 2001; Herbert et al., 2009; Isolan et al., 2007; Masia-Warner, Fisher, Shrout, Rathor, & Klein, 2007; Wagner et al., 2004).

Social Anxiety Scale for Children

The Social Anxiety Scale for Children or Adolescents—Revised (SASC-CA) is an 18-item self-report measure assessing social-evaluative anxiety, with separate child (LaGreca & Stone, 1993) and adolescent versions (Ginsburg, LaGreca, & Silverman, 1997). The SASC-CA items are derived from two adult measures: the SADS and the FNE. The SASC-CA also yields three factors: fear of negative evaluation, social avoidance and distress in new situations (SAD-N), and general social avoidance and inhibition (SAD-G). Normative data have been reported for adolescents in grades 4 through 11 (Walters, Caster, & Inderbitzen, 1996). The SASC-CA has been found to discriminate adolescents with and without SAD (Ginsburg, LaGreca, & Silverman, 1998) and to show good discriminate validity (Kristensen & Torgersen, 2006). It also has good internal consistency and 12-month test-retest reliability (Storch et al., 2004). The SASC-CA has been used in several clinical trials to assess treatment outcome with noticeable sensitivity (March, Entusah, Rynn, Albano, & Tourian, 2007; Masia-Warner et al., 2005; Wagner et al., 2004).

Social Skills Questionnaires

Three self-report measures of social skills have been developed. The Social Skills Questionnaire (SSQ-P) (Spence, 1995) is a 30-item scale that assesses a parent's perception of their child's social skills. A 3-point Likert scale is used. The SSQ-P has good internal consistency and split-half reliability (Spence, 1995). The Teenage Inventory of Social Skills (TISS) (Inderbitzen & Foster, 1992) was designed to identify adolescents in grades 7 through 12 with problematic peer relationships and to help target specific problematic behaviors for intervention. It is a 40-item self-report scale with initial reports demonstrating good test-retest reliability and convergent and discriminate validity (Inderbitzen & Foster, 1992). The Matson Evaluation of Social Skills with Youngsters (MESSY) (Matson, Rotatori, & Helsel, 1983) is another self-report measure of social skills in children. It is a 62-item questionnaire that consists of five factors: overconfident, impulsive/recalcitrant, jealous/withdrawal, inappropriate assertiveness, and appropriate social skills.

Spence Children's Anxiety Scale

The Spence Children's Anxiety Scale (SCAS) (Spence, 1998) is a self-report instrument for various anxiety disorders to be used with children aged 8 to 12. The instrument consists of 38 clinical items and six filler items; the SP subscale consists of six items. The frequency of each item is rated on a 4-point Likert scale. Spence (1998) provided data supporting the psychometric properties of the SCAS and supporting factor structure of the instrument. The SCAS is unique in that it assesses symptoms consistent with several childhood anxiety disorders rather than general anxiety, and it was developed with sensitivity to developmental factors rather than as a downward extension of an adult measure. Although the SCAS may prove useful as a screening tool for anxiety disorders in children, the SP subscale provides relatively little information, limiting its clinical utility as a measure of social anxiety *per se*.

Kutcher Generalized Social Anxiety Scale for Adolescents

Brooks and Kutcher (2004) developed a measure to assess social anxiety symptoms and treatment outcome in adolescents aged 11–17. The Kutcher Generalized Social Anxiety Scale for Adolescents (K-GSADS-A) is a clinician-administered measure with four subscales: Fear and Anxiety, Avoidance, Affective Distress, and Somatic Distress. The K-GSADS-A demonstrates adequate internal consistency, convergent validity with other severity measures, and divergent validity with respect to depression (Brooks & Kucher, 2004). The K-GSADS-A also demonstrates good sensitivity to changes in severity. It has been used in several clinical trials (Brooks & Kutcher, 2004; Wagner et al., 2004).

In addition, there are several other self-report measures that assess a broad range of anxiety symptoms and that include social anxiety subscales. These include the Multi-Dimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997), the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher, Khetarpal, & Brent, 1997), and the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978).

Social Phobic Inventory in Adolescents

Moore and Gee (2003) developed the Social Phobic Inventory (SoPHI), a 21-item measure to assess social anxiety symptoms according to DSM-IV criteria for adults. Bermejo, Garcia-Lopez, Hidalgo, and Moore (2011) adapted the SoPHI for use with an adolescent population, and found that the measure showed good psychometric properties. They also found it to be valid in a sample of Spanish-speaking adolescents.

SPIN and Mini-SPIN in Adolescents

Johnson, Inderbitzen-Nolan, and Anderson (2006) examined the validity and reliability of the SPIN among a community sample of adolescents, finding support

for its temporal stability, internal consistency, and construct validity. Ranta et al. (2007) provided data supporting good test-retest reliability and internal consistency for the SPIN among a large sample of Finnish adolescents. As part of a separate study, Ranta, Kaltiala-Heino, Rantanen, Tuomisto, and Marttunen, (2007) provided data supporting the SPIN's ability to differentiate adolescents with SAD from those without SAD, relative to diagnoses made using a semi-structured clinical. Additionally, the SPIN has been translated for use with non-English speaking adolescents (Väänänen et al., 2011; Garcia-Lopez et al., 2010; Ranta et al., 2007, Ranta, Kaltiala-Heino, Rantanen, & Marttunen, 2012). In addition, similar to adult populations, the three-item Mini-SPIN has been shown to be a useful screening tool for SAD among adolescents (Ranta et al. 2012).

Measures of Social Self-Efficacy and Self-Esteem in Adolescents

Self efficacy refers to one's confidence in making favorable impressions on others, and is an important construct in some theories of SAD. Originally developed for use with adults, the Self Efficacy for Social Situations Scale (SESS) has also been shown to be useful with an adolescent population. Replicating the original study using an adult sample (Gaudiano & Herbert, 2003), the measure predicted subjective anxiety and predicted performance in role-play tasks in addition to more clearly predicting self-ratings in contrast to observer ratings. Changes in the ratings on the SESS were strongly associated with changes in symptomatology following treatment (Gaudiano & Herbert, 2007).

Accompanying efforts to assess self efficacy among individuals with SAD, a number of studies have assessed implicit and explicit self-esteem. In a population of adolescents, Schreiber, Bohn, Aderka, Stangier, and Steil (2012) examined implicit and explicit self-esteem, finding that those with SAD displayed a discrepancy of high implicit self-esteem while exhibiting low explicit self-esteem. In a longitudinal study with a large sample of adolescents in the Netherlands, researchers examined whether implicit and explicit measurements of self-esteem predicted future depression and SAD (van Tuijl, de Jong, Sportel, de Hullu, & Nauta, 2014). Findings suggested that low explicit self-esteem was predictive of higher levels of depression and SAD at follow-up.

ROLE-PLAYING PROCEDURES

The primary goal of any clinical assessment procedure is to obtain a reliable sample of behavior that is representative of the individual's functioning outside the clinic or laboratory context, so valid inferences can be made about the person's behavior in naturalistic settings. Social anxiety by its very nature involves social settings and interactions, so *in vivo* naturalistic observations of social encounters would be ideal. Such observations are generally precluded on both practical and theoretical grounds, however. Although naturalistic observation may be feasible for socially anxious children in some cases (e.g., in the

classroom, on the playground), it is very difficult to observe adults unobtrusively in their natural environments. Moreover, established avoidance patterns may preclude assessment of precisely the situations that are most problematic for any individual. A socially anxious individual with a primary fear of heterosocial interactions, for example, may avoid all such situations, and naturalistic observations alone would therefore fail to capture this domain. Finally, naturalistic observations make comparisons among individuals difficult, because each individual largely determines the stimulus parameters to which he or she responds, thereby resulting in a loss of standardization.

For all of these reasons, role-playing procedures, in which various situations are enacted with trained confederates in the clinic or laboratory, have become popular in the assessment of social anxiety. In our experience, even clients who express initial skepticism about how realistic such simulations will be are quickly surprised to find how psychologically realistic they become. Although role-playing procedures are often used for treatment purposes (Butler & Wells, 1995; Herbert, Gaudiano, Rheingold, Harwell, Dalrymple, & Nolan, 2005), the following discussion is limited to their use as assessment tools.

Role-Play Test

The role-play test (RPT) is the most common procedure in the behavioral assessment of social anxiety (Glass & Arnkoff, 1989). RPTs are used to obtain a representative sample of the patient's behavior and are practically helpful when attempting to identify specific social skills deficits. The RPT is not, strictly speaking, a standardized test, but rather a series of procedures focusing on the enactment of simulated social situations in the therapist's office or the research laboratory. Two types of role-plays have emerged: structured and unstructured. These types of role-plays are not qualitatively different, but rather vary in the degree of structure imposed on the stimulus. In both situations, patients are aware that they are being observed and usually videotaped. In the structured approach, patients are presented with a series of descriptions of social situations, with a confederate delivering a prompt line at the end of each description. The confederate typically responds as minimally as possible in order to keep the focus on the patient, and the interaction goes on for a predetermined period of time, typically two to five minutes. In the unstructured role-play, patients interact with a confederate for a period of time, typically two to 12 minutes, and they are instructed to behave as they typically would in social interactions. Confederates are trained to behave as naturalistically as possible while permitting the patient ample opportunity to talk. Structured role-plays are preferred in research settings, and they have the advantage of providing a sample of behavior in response to a standard stimulus. Unstructured role-plays may be more externally valid, but that ability to make normative comparisons among patients is more limited. Unlike RPTs traditionally used with chronic psychiatric patients, which tend to be very brief and highly structured (e.g., Bellack, Morrison, Mueser,

Wade, & Sayers, 1990), the RPTs used with persons with social anxiety are typically of longer duration and permit the confederate greater leeway in interacting with the patient. This method establishes a more natural social context, thereby increasing the representativeness of the resulting behavior. Ratings of skills and anxiety can be derived from patient reports, confederate reports, and ratings of videotapes by external raters. Depending upon one's purposes, behavioral ratings can be micro (e.g., exact duration of eye contact) or macro (e.g., overall quality of social skills) in the level of analysis.

In addition to their use to assess social skills, RPTs can be used to assess cognitive processes associated with social anxiety. For example, Greenberg-Saluck and Herbert (2005) found that self-focused attention among individuals with SAD (but not among nonclinical controls) was associated with poorer recall of interpersonal information about a confederate following a RPT.

The validity of RPTs for assessing social skills of initiating and maintaining a conversation was tested in a study by comparing structured and unstructured role-plays with a naturalistic interaction (Merluzzi & Biever, 1987). Social skill ratings by judges, confederates, and participants themselves did not differ as a function of type of interaction. Extended RPTs have been shown to be sensitive to change associated with treatment in dating-anxious individuals and have distinguished confident from shy students (Arkowitz, Lichenstein, McGovern, & Hines, 1975; Twentyman & McFall, 1975). RPTs have also been shown to be sensitive to treatment effects in adults with SAD (e.g., Herbert et al, 2005). Similarly, RPTs have also been successfully used with child and adolescent samples in treatment outcome research to assess social skills and anxiety (Beidel et al., 2005; Compton et al., 2001; Herbert et al., 2009).

Along with RPTs, impromptu speeches are also useful behavioral assessment paradigms for social anxiety, because public speaking is by far the single most common phobic situation identified in SAD. Impromptu speeches require the patient to speak for a given length of time (typically three to 10 minutes) to a small audience (usually two to three confederates). Patients can be given a set of topics to choose from or can pick topics of their choice. Little research has been done on the validity and reliability of the impromptu speech task. In a study by Beidel, Turner, Jacob, and Cooley (1989), a 10-minute impromptu speech in which the patient was given a set of topics to choose from was found to be a reliable method for determining the physiological, cognitive, and behavioral parameters of SAD. Bergamaschi et al. (2011) found performance on a public speaking test to be sensitive to treatment effects. In our laboratory, we use both a structured RPT and an impromptu speech in our assessment of persons with SAD (e.g., Herbert, Hope, & Bellack, 1992; Herbert et al., 2005). We rate video recordings on overall social skills, as well as the quality of verbal content, nonverbal behavior, and paralinguistic features (e.g., speech rate, volume, tone, etc.). Stevens et al. (2013) recently found that overall talking time distinguished patients with SAD from healthy controls. In fact, other variables (e.g., cognitions, self-focused attention,

safety behaviors) added little incremental effects beyond overall talking time in predicting behavioral performance on a RPT.

There has been a longstanding controversy regarding whether the impaired performance of individuals with SAD on RPTs reflects an actual skills deficit, or merely the performance-impairing effects of high anxiety, or both. Beidel, Rao, Scharfstein, Wong, and Alfano (2010) found that patients with GSAD had poorer performance on a standardized RPT (as rated by blind raters) relative to those with non-generalized SAD, who in turn evidenced poorer performance than healthy controls. Moreover, the group differences remained even after controlling for self-rated and observer-rated anxiety level. De Los Reyes, Bunnell, and Beidel (2013) found that variability in RPT performance was not merely a function of symptom severity. Finally, augmentation of standard CBT with social skills training (SST) has produced some of the largest effect sizes ever observed in treatment studies of SAD (Herbert et al., 2005). Taken together, these findings suggest that the RPT is not merely assessing impaired performance due to anxiety, but more fundamental skills deficits as well, and that directly targeting these deficits can enhance treatment outcomes. Further research is needed on the targeting of specific treatment strategies such as SST to specific patients.

Simulated Social Interaction Test

Curran et al. (1980, 1982) developed the Simulated Social Interaction Test (SSIT), a highly standardized RPT. The SSIT is a behavioral RPT that consists of trained judges' ratings of subjects' performance in various simulated social situations. The interactions comprising the SSIT are based on different types of problematic social situations drawn from the factor-analytic work of Richardson and Tasto (1976). These types of interactions include (1) disapproval or criticism, (2) social visibility and assertiveness, (3) confrontation and anger expression, (4) heterosexual contact, (5) interpersonal warmth, (6) conflict with or rejection by parent or relative, (7) interpersonal loss, and (8) receiving compliments. Each SSIT simulation involves a narrator who reads a script describing a social situation and a confederate who provides verbal prompts. Four of the simulations involve a male confederate and the other involves a female. The individual's anxiety response and social skills are then evaluated by a rater on an 11-point Likert scale.

The SSIT is one of the best validated behavioral tests for the measurement of social skills. It has been shown to have high test-retest reliability, good interrater reliability, and high internal consistency of both anxiety and performance scores (Curran, 1982; Curran et al., 1980; Farrell, Curran, Zwick, & Monti, 1983). The construct validity of the anxiety and skill components of the SSIT has been supported in various populations, including psychiatric outpatients (Curran et al., 1980), psychiatric inpatients, and a control of National Guard members (Farrell et al., 1983). Mersch, Breukers, and Emmelkamp (1992) investigated the utility of the SSIT with a Dutch socially anxious population.

The study supports the cross-national usefulness of the SSIT as well as the generalizability of the measure with social phobic populations. They found that the anxiety reported by individuals during the SSIT was correlated with distress reported on self-report measures and that subjective anxiety ratings on the SSIT were correlated with the frequency of the negative self-statements measured immediately afterward. They did, however, find that the convergent validity of the SSIT is questionable, because the SSIT was poorly correlated with other supposed measures for the same constructs.

The SSIT was found to be sensitive to change in a treatment outcome study of individuals with social anxiety (Mersch, Emmelkamp, & Lips, 1991). Although the SSIT provides a wealth of behavioral data, its utility in clinical settings is limited by the high degree of structure required and the need for highly trained judges.

SELF-MONITORING

Self-monitoring involves the client recording the frequency, and at times the intensity and quality, of targeted thoughts, feelings, and overt behaviors that may be present during anxiety-provoking situations. (It is noteworthy that this clinical use of the term is distinct from its use in social psychology, where it refers to the tailoring of one's behavior to specific social situations for self-presentational purposes; see, for example, Hofmann, 2006). The primary advantage of self-monitoring is that it can be used in naturalistic settings and, therefore, provides data with a high degree of external validity. Observations are recorded in various diaries, daily logs, and other recording forms. New technologies such as Ecological Momentary Assessment (EMA), in which self-monitoring recordings are made on an electronic device such as a smart phone in response to prompts from the clinician or researcher, are likely to play increasing roles in years to come (Tan et al., 2012). Frequency and duration of social interactions, content of conversations, thoughts evoked by phobic situations, and degree of anxiety experienced are all examples of common target behaviors. Self-monitoring can be used as a method to assist in identifying anxiety-provoking situations for the purpose of planning and monitoring the effects of treatment. In addition, the well-known reactivity effects of self-monitoring, in which merely engaging in the procedure tends to increase the frequency of positive behaviors and decrease negative behaviors, makes self-monitoring a useful therapeutic tool in and of itself (Herbert & Nelson-Gray, 1997; Nelson, Hay, Devany, & Koslow-Green, 1980; Nietzel, Bernstein, & Russell, 1988).

Self-monitoring is an integral part of most cognitive behavioral treatment programs for social anxiety, and the procedure has been used as an outcome measure in treatment studies of SAD (Butler, Cullington, Munby, Amies, & Gelder, 1984; Mattick & Peters, 1988). However, little research has examined the psychometrics of self-monitoring in socially anxious samples.

THOUGHT-LISTING AND THOUGHT-ENDORSEMENT PROCEDURES

With the increasing prominence of information-processing conceptualizations of social anxiety (Clark & Wells, 1995; Rapee & Heimberg, 1997) and the development of effective cognitively based intervention protocols (Heimberg, Hope, Dodge, & Becker, 1990), procedures designed to assess the content of dysfunctional cognitions have grown in popularity. The self-report questionnaires described previously are designed to assess one aspect of cognitive content: the individual's beliefs about socially relevant situations. That is, persons are essentially asked to infer general beliefs from their experience. A less inferential approach is to have socially anxious persons directly report their thoughts in response to some relevant stimulus, such as a social task, then possibly to rate the frequency or impact of each thought. As with role-playing procedures, thought-listing has become an integral part of many CBT programs for SAD, although the current discussion will focus on its use as an assessment tool.

Social Interaction Self-Statement Test

The Social Interaction Self-Statement Test (SISST) (Glass, Merluzzi, Biever, & Larsen, 1982), the best-known cognitive endorsement procedure, combines elements of a self-rating measure with an RPT. The SSISST is a 20-item scale in which individuals rate on 5-point Likert scales the frequency of 12 positive and 15 negative thoughts after a role-play of a heterosocial interaction. Positive and negative subscale scores are then derived. The SISST was initially developed and validated with a socially anxious college student sample (Glass et al., 1982). It was found to correlate with social anxiety questionnaires and with self-report inventories of social skill.

Studies have yielded mixed results regarding the extent to which the SISST and other protocol measures of self-statements yield a consistent picture of a person's internal dialogue (Glass & Furlong, 1990). Some data suggest that alternative cognitive assessment procedures may yield discrepant results (Johnson & Glass, 1989; Myszka, Galassi, & Ware, 1986). Dodge, Hope, Heimberg, and Becker (1988) found that negative thought statements on the SISST were related to various measures of anxiety and depression as well as to negative thoughts reported after an individualized behavioral test. Furthermore, the negative thoughts subscale of the SISST discriminated between socially anxious persons whose primary fear involved social interactions and those whose anxiety was related to public speaking. Similarly, Glass and Furlong (1990) found that negative thoughts on a thought-listing prior to an actual conversation were related to negative self-statements on the SISST completed after the interaction in a sample of socially anxious adults. In the same study, thoughts on the SISST were also related to various self-report measures of social anxiety, irrational beliefs, and negative evaluation, as well as global ratings of skill and anxiety made by judges.

The SISST has shown that high socially anxious individuals endorse more negative and fewer positive thoughts than low anxious individuals (Beidel, Turner, & Dancu, 1985; Glass et al., 1982). Moreover, SISST negative subscale scores have been shown to be sensitive to situational factors (Beazley, Glass, Chambless, & Arnkoff, 2001; Turner, Beidel, & Larkin, 1986). Both the positive and negative subscales significantly discriminated patients with SAD from patients with other anxiety disorders in a treatment-seeking sample (Becker, Namour, Zayfert, & Hegel, 2001). Similarly, Cho and Telch (2005) found that the content of both positive and negative self-statements distinguished symptoms of social anxiety and depression.

The SSIST has been used in SAD treatment outcome research and has been shown to be sensitive to treatment effects (Heimberg, Dodge et al., 1990; Turner, Beidel, & Jacob, 1994). It is a resourceful questionnaire to use in cognitive interventions when a client is having difficulty spontaneously generating thoughts. A limitation of the SISST, however, is that the thoughts are limited to those involving heterosexual interactions and do not cover other social situations that a person with social anxiety may fear (Elting & Hope, 1995). Further research is needed to assess the validity of the SISST with other types of situations or possibly to develop other self-statement measures specifically for certain situations.

The SISST has been modified to assess typical fearful thoughts associated with public speaking (Hofmann & DiBartolo, 2000). This instrument, the Self-Statements during Public Speaking Scale (SSPS), is a 10-item questionnaire consisting of two 5-item subscales, the positive self-statements and the negative self-statements subscales. In contrast to the SISST, no role-play is required to assess fearful thoughts. Preliminary data reveal that both the positive and negative subscales of the SSPS are supported by factor analyses in both clinical and nonclinical samples, and have good internal consistency and test-retest reliability (Hofmann & DiBartolo, 2000). The factor structure of a German version of the scale was subsequently supported (Gerlach, Heinrichs, Bandl, & Zimmermann, 2007).

Thought-Listing and Thought-Recalling

Along with the SISST, thought-listing is a common practice of cognitive assessment in social anxiety research. Thought-listing, sometimes referred to as thought-recall, is a method in which patients are asked to record the thought that they recall having in a given time period (Cacioppo & Petty, 1981). Thought-listing is often used in conjunction with RPTs. After a role-play is completed, patients are instructed to write thoughts they remember having during the role-play. Thought-listing can be used while anticipating an upcoming situation (for example, listing thoughts about having to ask a person out on a date). Patients can also be asked to keep a diary and list thoughts after real-life interactions. Through protocol analysis, these thoughts are scored according to criteria such as content (themes) or valence (positive, negative, and neutral; Arnkoff & Glass, 1989).

Social anxiety studies that use thought-listings have generally coded the thoughts for valence, specifically focusing on the frequency of positive versus negative thoughts. A few studies have focused on coding thoughts according to focus of thought (self versus other or task; Glass & Furlong, 1990; Hope, Heimberg, Zollo, Nyman, & O'Brien, 1987). Regarding psychometric properties, inter-rater reliability for coding thoughts has usually been high, especially when raters have been trained. Mixed results have been found regarding the construct validity of thought-listing. Cacioppo, Glass, and Merluzzi (1979) have shown the thought-listing is able to differentiate high and low socially anxious subjects. However, these findings were not found in a study by Hope et al. (1987). Socially anxious subjects have been found to report fewer positive thoughts and more negative thoughts during interactions relative to nonphobic controls (Heimberg, Acerra, & Holstein, 1985; Turner et al., 1986). Thought-listing has also shown mixed results for concurrent validity. Hope et al. (1987) showed that thoughts written after interactions through the use of a daily diary were related to anxiety, length, and frequency of the interaction. This study suggests that one's thoughts are related to the level of anxiety felt in a given situation. In contrast, Glass and Furlong (1990) did not find a relationship between thought-listing scores written before a role-play and fear of negative evaluation or public-consciousness in severely socially anxious adults, suggesting thought-listing may not always be related to other types of cognitive assessments. Sturmer, Bruch, Haase, and Amico (2002) found superior convergent validity for the more structured SISST relative to a thought-listing procedure among college students.

Negative thoughts scores on thought-listings have differentiated socially anxious individuals from normal controls but not from heterosocially anxious college students (Nyman & Heimberg, 1985). Thought-listing has also been used as a dependent variable in treatment outcome studies of SAD (e.g., Heimberg & Liebowitz, 1992; Heinrichs & Hofmann, 2005), and both positive and negative thoughts have been found to change as a function of treatment (Heimberg, Dodge et al., 1990).

Other thought-production or endorsement methods have occasionally been employed, primarily in studies of subclinical social anxiety, but none has garnered widespread acceptance. For example, the Articulated Thoughts during Simulated Situations procedure requires subjects to report their thoughts at predetermined intervals in response to audiotaped descriptions of various social situations.

PSYCHOPHYSIOLOGICAL ASSESSMENT

Physiological arousal is a hallmark of anxiety, and a body of research addresses the assessment of physiological responses to anxiety-provoking stimuli. The autonomic nervous system (ANS) is divided into two branches: the sympathetic system and the parasympathetic system. The sympathetic nervous system responds to threat by increasing autonomic arousal, resulting in the so-called

fight-or-flight response. Common changes include increases in respiration, cardiovascular activity, and muscle tension, with corresponding decreases in peripheral blood flow and gastrointestinal activity. The parasympathetic system has essentially the opposite effects, resulting in decreased arousal. Although the vast majority of work on the physiological assessment of anxiety has focused on sympathetic arousal, Leary and Kowalski (1995) argue that parasympathetic effects may also be involved in some anxiety-related reactions, such as embarrassment.

There has been some controversy over the degree of importance to place on psychophysiological assessment in social anxiety. McNeil et al. (1995) believe that physiological measures are essential to thorough assessment. Scholing and Emmelkamp (1990), in contrast, raise questions about the value of such assessment, including concerns about the test-retest reliability of cardiovascular measures in particular. Another problem is the overall lack of specificity of arousal patterns across the various anxiety disorders. Although some research has found differences in patterns of physiological arousal across different forms of anxiety (e.g., Liebowitz et al. 1985), most studies have found wide variability across individuals within any given diagnostic group and few consistent differences across the anxiety disorders. It is also unclear how physiological data relate to treatment choice and treatment outcome. Unlike assessment of cognitive content or social skills, which relate directly to the manner in which one conducts cognitive restructuring or social skills training, physiological data are not clearly related to treatment decisions—including pharmacological treatment—given currently available interventions. Finally, the most phobic situations in the case of social anxiety (e.g., holding a conversation, giving a speech) involve motoric responses of some kind, and such task demands may mask differences across groups or otherwise interfere with physiological measurement (McNeil et al., 1995). Despite these concerns, psychophysiological data may eventually prove important to the elusive question of meaningful treatment-relevant subtypes of social anxiety.

Cardiovascular Assessment

Cardiovascular responses can be assessed by measures of heart rate and blood pressure. Heart rate has been the most commonly used physiological measure in social anxiety research because it is easily measured and relatively insensitive to measurement artifacts (Nietzel & Bernstein, 1981). Heart rate is typically measured by assessing the subject's pulse at regular intervals across a specific time period, although it can also be recorded continuously with a plethysmograph. Heart rate and blood pressure have been assessed during simulations of phobic social saturations using role-playing procedures (Beidel et al., 1985; Heimberg, Hope et al., 1990; Hofmann, Newman, Ehlers & Roth, 1995). For example, a person's pulse rate and systolic blood pressure can be recorded after that person is told about the role-play task, immediately before the task, at regular intervals

during the role-play, and immediately afterwards. Although there is consensus on the importance of baseline measurement, there is currently no standard for the parameters of baseline recordings.

Heart rate and blood pressure measurements have demonstrated good test-retest reliability during an impromptu speech task (Beidel, Turner, Jacob, et al., 1989). Heart rate and systolic blood pressure have been found to differentiate between patients with SAD and normal controls during role-play interactions and public speaking tasks in some studies (e.g., Beidel et al, 1985; Hofmann et al., 1995), but not in others (e.g., Stevens et al., 2013). Heimberg, Hope, et al. (1990) found higher heart rates during a public speaking task in socially anxious individuals with specific public speaking fears relative to those with generalized SAD and healthy controls, although no differences were found between the latter two groups. Similar results were reported by Levin et al. (1993). Heart rate recordings during role-play procedures have been shown to be sensitive to treatment effects in outcome studies of SAD (Emmelkamp, Mersch, Vissia, & Van Der Helm, 1985; Turner, Beidel, Long, & Greenhouse, 1992). Of interesting note is that there has been little research examining resting cardiovascular responses or other psychophysiology in SAD; most cardiovascular data have been derived from studies using phobic provocations. One study found heightened cheek temperature but no differences in skin conductance in SAD patients who report blushing, relative to SAD patients who do not blush, as well as to healthy controls (Voncken & Bögels, 2009).

Electrodermal Recordings

Recordings of dermatologic electrical activity can be assessed by skin conductance and skin resistance; Palmar Sweat Prints and Finger Sweat Prints are examples of skin conductance and skin resistance measures. Individuals with SAD have been found to exhibit a slower habituation rate of electrodermal activity and greater range of response than normal controls in response to both social and nonsocial stimuli (Lader, 1967; Dimberg, Fredrikson, & Lundquist, 1986). Electrodermal activity, however, is very reactive to both environmental and psychological artifacts.

Other Physiological Assessments

McTeague et al. (2009) found that eye-blink responses to acoustic startle probes while imagining various social and nonsocial threat scenarios reliability distinguished individuals with generalized SAD from those with circumscribed social anxiety and from healthy controls. Several studies have begun to examine the psychobiology of social anxiety. Research has examined both central and ANS functioning, as well as neuroendocrine responses to biological challenges. For example, in a classic study, Liebowitz et al. (1985) found that individuals with SAD did not experience an exacerbation of symptoms after lactate infusions,

but PD patients did react. Davidson and colleagues (1993) used magnetic resonance spectroscopy (MRS) to compare a sample of social phobics with a sample of normal control subjects and found lower central nervous system (CNS) activity in both cortical and subcortical regions for the social phobic group. Stein, Asmundson, and Chartier (1994) found no differences in plasma bioamine levels between socially anxious individuals and normal controls. Van Veen, Van der Wee, Fiselier, Van Vilet, and Westenberg (2007) found differences between patients with SAD, relative to those with PD in response to a meta-Chlorophenylpiperazine challenge, suggesting differences in the underlying pathophysiology of the conditions. Stein and Stein (2008) provide an overview of several neuroimaging studies in their review of the current research on SAD. It is difficult to draw general conclusions from the literature on the psychobiology of social anxiety at this time because most studies have used small samples, testing procedures have not been uniform across studies, and, not surprisingly, results have been inconsistent.

SUMMARY

The hallmark of a comprehensive assessment of social anxiety and SAD is a multimodal approach. Assessment using a single measure or procedure is unlikely to provide adequate depth and breadth of information. The specific strategy employed will vary as a function of the assessment goals. In clinical settings, a comprehensive clinical interview followed by one or more standardized self-report questionnaires and a RPT provide a solid foundation for treatment planning. Further assessment may be required depending upon the type of treatment employed. For example, further assessment of cognitions using thought-listing procedures may be necessary before beginning cognitive restructuring, and further self-monitoring and role-play procedures may be required to identify specific targets for social skills training. At this time, physiological assessment does not play a central role in the clinical setting because such assessment is not central to current evidence-based treatments for social anxiety.

By their very nature, self-report questionnaires yield data that are readily comparable across clinicians and researchers. By comparing scores from instruments such as the SPAI, LSAS, SPIN, or CUSADOS, for example, one can quickly judge the overall comparability of symptom severity of samples of SAIs. Similarly, the advent of structured clinical interviews has resulted in increased diagnostic reliability. Unfortunately, despite their increased use, such standardization has generally not occurred with thought-listing and role-play procedures, making comparisons of research findings across groups difficult. Future work aimed at standardizing such procedures by combining the most useful elements across investigators would facilitate progress.

A striking limitation of virtually all of the measures related to social interactions is the assumption of heterosexuality. The SISST, for example, assesses

only heterosocial situations. Many RPTs require the individual to interact with an opposite-sex confederate, on the assumption that the situation will elicit fears associated with dating or romantic interests. Without explicit recruitment efforts, we have found that a surprisingly large number of the persons presenting for our treatment programs for SAD are bi- or homosexual. When possible, we have modified extant assessment instruments accordingly, but more explicit attention to this issue is clearly warranted.

In clinical contexts, the ultimate value of any assessment measure lies in the degree to which it contributes to decisions that positively impact treatment outcome, a concept that Hayes, Nelson, and Jarrett (1986) refer to as "treatment utility." Given its importance, surprisingly little research has directly addressed this topic. Instead, instruments are typically evaluated solely according to traditional psychometric criteria. The past three decades have witnessed a proliferation of self-report questionnaires measuring some aspect of social anxiety, and detailed psychometric data are routinely provided. Notwithstanding the importance of psychometrics, greater emphasis on the clinical utility of instruments would be helpful to clinicians and researchers alike.

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