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Evidence-Based Assessment of Anxiety Disorders in Adults

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This article discusses issues related to the development and dissemination of evidence-based assessment strategies for anxiety disorders and associated problems. It begins with a review of the criteria that should be considered when determining whether particular assessment procedures are evidence-based. These include such factors as reliability, validity, cost-effectiveness, consumer acceptability, utility across different populations, and ease of dissemination. The importance of considering the purpose of the assessment process when deciding whether a procedure is evidence-based is emphasized. Next, the major assessment domains that are particularly important in the area of anxiety disorders (e.g., triggers for anxiety symptoms, avoidance behaviors) are reviewed. Finally, some potential obstacles to the dissemination of evidence-based assessment procedures are discussed along with suggestions for managing these obstacles.

Keywords: evidence-based assessment, anxiety disorders, assessment domains

One of the most important changes in the field of clinical psychology over the last 20 years has been the development, validation, and dissemination of evidence-based treatments for particular clinical syndromes (e.g., Barlow, 2001; Nathan & Gorman, 2002). Today, many of these treatments are being taught in clinical psychology training programs, psychiatric residency training programs, and elsewhere. There are now hundreds of books describing various evidence-based approaches to treatment, and numerous training opportunities exist for practicing clinicians, including workshops, symposia, and formal courses. Although there remains some resistance to the wholesale adoption of empirically supported treatments (ESTs), the marketplace's growing demand that clinicians use brief, effective treatments has led to increasing adoption of these interventions, even among clinicians who might otherwise not have been open to using these approaches.

In the mid-1990s, the Task Force on the Promotion and Dissemination of Psychological Procedures (Society of Clinical Psychology, Division 12, American Psychological Association) published specific guidelines for determining whether a treatment is empirically validated (see Chambless et al., 1998; Task Force on Promotion and Dissemination of Psychological Procedures, 1995). Given the progress that has been made in the realm of ESTs, it is surprising that until recently (e.g., Lilienfeld, 2002), psychologists have paid little attention to the need to develop strategies for identifying and disseminating evidence-based approaches to assessment. This special series of articles for *Psychological Assessment* is therefore particularly timely. The purpose of this article is to discuss issues related to the development of criteria for identifying evidence-based assessment procedures in the area of anxiety disorders.

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This article does not aim to review all evidence-based measures for anxiety disorders. Comprehensive reviews of established scales for anxiety disorders are available elsewhere (e.g., Antony & Barlow, 2002; Antony, Orsillo, & Roemer, 2001). Instead, the goal is to discuss possible methods for developing and identifying evidence-based assessment strategies. The article begins with an overview of several features of evidence-based assessment, followed by a discussion of the most important domains for assessment in anxiety disorders (i.e., the areas in which evidence-based measures are most likely to be useful). Finally, the article discusses issues and obstacles related to the selection of evidence-based assessment strategies. Although many different disorders in the *Diagnostic and Statistical Manual of Mental Disorders* (4th edition; *DSM–IV*; American Psychiatric Association, 1994) are characterized by anxiety, this review focuses primarily on the major anxiety disorders, including panic disorder and agoraphobia (PDA), social anxiety disorder (SAD), generalized anxiety disorder (GAD), obsessive–compulsive disorder (OCD), posttraumatic stress disorder (PTSD), and specific phobia.

Features of Evidence-Based Assessment in Anxiety Disorders

In most studies designed to evaluate the value of a particular assessment tool, the emphasis has been on issues of reliability (e.g., internal consistency, interrater reliability, test–retest reliability) and validity (concurrent validity, construct validity, content validity, convergent validity, criterion-related validity, discriminant validity, discriminative validity, incremental validity, face validity, predictive validity, sensitivity and specificity, support for factor or subscale structure, treatment sensitivity). In most cases, studies have examined the most basic forms of validity, and for many established measures we know little more than the extent to which particular measures are correlated with other measures. In fact, in one of the few studies that examined the relationship between scores on a popular scale and performance in a behavioral task, results were not promising. Klieger and Franklin (1993) examined the predictive validity of the popular Fear Survey Sched-

ule (Wolpe & Lang, 1964) and found relatively low correlations between fear ratings on particular scale items and responses to a behavioral approach task involving exposure to the situation described in the particular item assessed on the scale. Of course, this finding should be interpreted cautiously because the reliability and validity of the single item used from the Fear Survey Schedule have not been established. Further, some studies have shown significant relationships between specific self-report measures and behavioral indices (e.g., Beidel, Borden, Turner, & Jacob, 1989).

Questions that remain to be answered for many existing measures are as follows:

> How well does the instrument predict a person's actual response in an anxiety-related situation?
>
> How useful is the instrument across different populations (e.g., ethnic and racial groups, different sexes, different ages, levels of education or intelligence)?
>
> What level of training is needed for an instrument to be reliable and valid?
>
> How effective is the instrument across different assessors or different settings?
>
> How easily can the instrument be disseminated?
>
> Is the instrument acceptable to the client (e.g., will the client agree to complete the assessment)?
>
> Is the instrument cost-effective (i.e., less expensive but as effective as alternative means of gathering the desired information) and cost-beneficial (i.e., does the monetary benefit of using the instrument exceed its cost; Yates & Taub, 2003)?

A broader issue to consider in evidence-based assessment is whether we should be developing assessment strategies for particular *DSM–IV* disorders or for the most important dimensions that are thought to be relevant across disorders, regardless of what the most appropriate diagnostic label or labels may be (Antony, 2002b). Although establishing a diagnosis is useful for the selection of appropriate evidence-based treatments (which are still based on *DSM–IV* diagnoses), there are also arguments for not relying too much on *DSM–IV* diagnoses for this purpose. First, most anxious patients present with multiple problems (Brown, Campbell, Lehman, Grisham, & Mancill, 2001), whereas ESTs typically target only a single diagnostic category. Second, many people present with features of particular anxiety disorders that do not meet full symptom criteria, and the EST guidelines say little about how to best treat such individuals.

The current, disorder-based approach to identifying appropriate treatments for an anxiety disorder has two disadvantages. First, it forces us to develop comprehensive treatments that include a wide variety of techniques to target all possible components of the disorder, even if they are not relevant for a given patient. Second, it may cause us to neglect strategies that can be useful for a particular individual even though he or she does not have the disorder for which those strategies were developed. For example, interoceptive exposure (i.e., repeated exposure to physical symptoms of arousal) is a component of evidence-based treatment for panic disorder but not for other anxiety disorders. Yet, for individuals with social phobia or certain specific phobias (e.g., fear of enclosed places) who are fearful of experiencing certain physical sensations, interoceptive exposure is probably useful, although it remains to be tested in these disorders. Although many experienced therapists may intuitively use creative strategies when it seems appropriate, to do so means they are not remaining entirely consistent with the empirically supported version of treatment. However, if we had an empirically supported approach to treating a person with an elevated fear of physical sensations, such an approach could be used regardless of whether the fear occurred in the context of panic disorder, claustrophobia, posttraumatic stress disorder, or hypochondriasis. Thus, reducing the emphasis on diagnostic categories for symptom domains may facilitate research on treatment strategies and may offer greater flexibility for working with the heterogeneity inherent within each specific anxiety disorder.

Focusing on domains that cut across diagnostic categories may also be necessary to best accommodate the high comorbidity rates observed between the anxiety disorders and unipolar depression. As noted above, studies suggest extremely high overlap between these conditions (Brown, Campbell, et al., 2001), and research generally supports the idea that anxiety and depression share an underlying construct of negative affect (e.g., Brown, Chorpita, & Barlow, 1998; Watson et al., 1995). An empirically supported assessment protocol for anxiety disorders would be remiss if some measure of the domain of negative affect as well as assessment of comorbid conditions were not included.

It is also important to understand the context in which a particular measure is evidence-based. For example, on its own, heart rate is probably not all that useful a measure of anxiety because it is affected by so many factors other than anxiety. However, when used along with other measures (e.g., subjective fear ratings), data regarding heart rate can provide important and useful information for the assessment of anxiety-related symptoms. In other words, it is important to talk about evidence-based protocols for assessment (perhaps including multiple instruments), rather than simply individual evidence-based tools. Ideally, assessment strategies should include a wide range of tools including screening questions, semistructured interviews, monitoring diaries, behavioral assessments, psychophysiological assessment, self-report symptom scales, and interviewer-administered scales. Of note, a recent review of trends in anxiety assessment found that over the past few decades, there has been a trend among anxiety researchers to use assessment protocols that are less multimodal and to rely more and more often on self-report scales only (Lawyer & Smitherman, 2004).

Although an evaluation of evidenced-based protocols is the desired ultimate outcome in evidence-based assessment, we should not downplay the difficulty inherent in this task. If we are not even using multimodal protocols, how can we measure their validity? Further, as in psychotherapy outcome research, research on assessment protocols will need to undergo various iterations to first understand the measures that should be included in protocols, what additional procedures or measures add incremental validity to decisions, and what measures provide redundant or unnecessary information and can be removed from protocols. When combining information from multiple sources, we need to understand how to combine these sources and what weight to give respective measures. Although this task may appear daunting, it is a necessary progression for our field.

Finally, a discussion of evidence-based assessment strategies for anxiety disorders is impossible without first identifying the purpose of the assessment process. The purpose of treatment is fairly

straightforward. Treatments that are found to decrease symptoms and reduce suffering are generally considered to be effective. In contrast, the purpose of assessment is not quite so straightforward. Assessment tools are used for many different purposes. As reviewed by Antony (2002a), the functions of an assessment tool can include any of the following:

> To establish a diagnosis (e.g., social phobia, obsessive–compulsive disorder).
>
> To measure the presence, absence, or severity of particular symptoms (e.g., social anxiety, panic attacks) and of a disorder (e.g., functional impairment, distress).
>
> To measure features that cannot be assessed directly through standard interview or self-report measures (e.g., physiological processes, nonconscious processes).
>
> To facilitate the selection of target problems for intervention and treatment planning.
>
> To measure treatment outcome (e.g., symptom reduction, reduction in functional impairment), relapse, and recurrence.
>
> To measure a phenomenon of interest for research (e.g., cognitions, heart rate, diagnosis).
>
> To assess whether a particular treatment is evidence-based.
>
> To include or exclude participants from a research study.
>
> To assess malingering (e.g., insurance or disability assessments).
>
> To predict future behavior (e.g., likelihood of compliance with treatment procedures).
>
> To evaluate qualifications for employment or determine eligibility for benefits, legal status, school placement, and so forth.

Before determining whether a particular assessment tool is evidence-based, one must ask, "For what purpose?" For example, a scale may be empirically valid for the purpose of distinguishing generalized anxiety disorder from panic disorder, but it may not be empirically supported as a measure of treatment outcome.

Domains of Assessment in Anxiety Disorders

Anxiety disorder assessment tools have generally developed in a haphazard way, typically to answer a particular research question or to fill a typical need. To date, there have been almost no attempts to determine in a prospective way which areas or domains should be the focus of assessment for anxiety disorders. One exception is a paper that emerged from the National Institutes of Health (NIH) Consensus Development Conference on the Treatment of Panic Disorder, which recommended a standardized assessment strategy for research on this particular condition (Shear & Maser, 1994). Although the recommended assessment procedures were meant for researchers, they are clearly relevant for clinicians as well.

Participants in the NIH conference developed a list of measures that they considered to be essential, including a structured interview diagnosis for panic disorder, daily monitoring of panic attacks and anticipatory anxiety, measurement of a tendency to fear bodily sensations of panic, assessment of panic-related phobias, measures of illness severity and impairment, measures of comorbidity, and long-term measures to assess status during follow-up and to assess relapse and remission. Each of these variables reflects an important aspect in the nature of PDA, and each is important to target during treatment.

With the exception of the NIH consensus development conference on panic disorder, there has been little discussion in the literature about what variables and domains should be the focus of anxiety disorder assessment. The purpose of this section is to explore possible areas that might be useful to include in the development of criteria for recommending an evidence-based protocol for assessing individuals with anxiety disorders. Almost all of these domains cut across disorders, although examples from particular disorders are included throughout this review.

The particular domains included are based on the key features of the anxiety disorders as defined in the *DSM–IV*, research on the psychopathology of anxiety disorders (for a recent review, see Barlow, 2002), the types of constructs that are typically assessed in anxiety disorders research and practice (Antony & Barlow, 2002; Antony et al., 2001), research on the comorbidity of anxiety and unipolar mood disorders (Brown, Campbell, et al., 2001), and expert consensus regarding the most important assessment targets (e.g., Shear & Maser, 1994). Note that the list of domains included in this review is not exhaustive, and it will likely change as we continue to learn more about the nature and treatment of anxiety disorders. Also, in many cases, there are not yet evidence-based tools for assessing these domains. In fact, much of this information is typically collected during the course of unstructured clinical interviews.

Information is also collected using idiographic diaries, monitoring forms, and behavioral tests, techniques firmly rooted in the tradition of behavioral assessment (Haynes & Heiby, 2003; Nelson & Hayes, 1986). Although one might be tempted to de-emphasize these types of instruments when devising empirically supported assessment protocols for anxiety disorders, the strengths of these instruments support their continued use. For example, analog behavioral assessment strategies have demonstrated strong discriminative and convergent validity for the assessment of social functioning (Norton & Hope, 2001), and self-monitoring strategies provide unique information for understanding anxiety (Craske & Tsao, 1999). As Mash and Foster (2001) point out, there are creative ways to assess the validity of tools like analog behavioral assessment to allow the continued use of these measures in the quest for empirically supported assessment protocols for anxiety disorders.

Although there is no official list of core dimensions that constitute the anxiety disorders, many of the domains discussed on the following pages are probably among those for which evidence-based treatments could be developed. In part, that is why it is so important to be able to assess these domains accurately.

Diagnostic Features

Because ESTs are developed for particular *DSM–IV* diagnostic categories, at the current time, it is still important to have evidence-based measures for establishing a diagnosis. For example, knowing that a person suffers from panic disorder should lead a clinician to consider the latest evidence-based treatments for this problem (e.g., cognitive restructuring, exposure) and to avoid strategies that are thought to be less useful for treating this condition (e.g., progressive muscle relaxation). The process of deter-

mining a patient's diagnosis also provides the clinician with information about the patient's symptoms, thereby informing the content of treatment and providing targets for outcome assessment.

Experts from across several disciplines (Shear & Maser, 1994; Summerfeldt & Antony, 2002) are in agreement that diagnostic status in clinical research studies should be determined by a semistructured clinical interview, such as the Anxiety Disorders Interview Schedule (ADIS-IV; Brown, Di Nardo, & Barlow, 1994; Di Nardo, Brown, & Barlow, 1994) or the Structured Clinical Interview for *DSM–IV* (SCID-IV; First, Spitzer, Gibbon, & Williams, 1996, 1997). In fact, such interviews are almost always included in anxiety disorders research.

However, semistructured diagnostic interviews are rarely used in clinical settings, despite available evidence suggesting that semistructured interviews lead to more accurate and reliable diagnoses than do traditional unstructured psychiatric interviews (Miller, 2001; Miller, Dasher, Collins, Griffiths, & Brown, 2001). Unfortunately, the gold standard, semistructured interviews take upward of two hours to administer, and it is unlikely that they will gain widespread use in routine clinical practice until new streamlined measures are developed, tested, and disseminated. Several brief diagnostic instruments exist (Bufka, Crawford, & Levitt, 2002), but they are often inadequate for the diagnosis of certain anxiety disorders. As a field, we need to develop briefer structured interviews that are useful for all the anxiety disorders and increase use of self-report diagnostic measures (e.g., Psychiatric Diagnostic Screening Questionnaire, Zimmerman & Mattia, 1999). It is also important to train clinicians to value structured assessments, whether diagnostic or domain-based. Computerized structured assessment tools may also prove useful and more practical for clinicians.

Anxiety Cues and Triggers

Most evidence-based psychological treatments for anxiety disorders require that patients be exposed to the situations, thoughts, and sensations that trigger their fear. For example, in PDA, panic attacks usually begin with an uncomfortable physical sensation (Breitholtz, Westling, & Öst, 1998), and psychological models of panic (e.g., Barlow, 2002; D. M. Clark, 1986, 1988) assume that it is these sensations and the patient's interpretation of the sensations that ultimately trigger unexpected panic attacks. Triggers may also include situations in which panic attacks tend to occur, particularly in the case of agoraphobia. Being able to assess these cues in a valid and reliable way is essential for establishing a diagnosis, for developing an appropriate treatment plan, and for measuring treatment outcome.

Situational cues. These include the objects, situations, and circumstances that trigger fear and anxiety. In OCD, these may include writing a letter (for fear of making a mistake) or eating "contaminated" food. In GAD, situational triggers may include waiting for a family member who is late returning from work or school. In PDA, measures such as the Mobility Inventory for Agoraphobia (Chambless, Caputo, Jasin, Gracely, & Williams, 1985) are designed to measure the situations in which people with PDA experience fear. Measures also exist for assessing situational triggers in SAD, OCD, and certain specific phobias, but less so for the other anxiety disorders. Clinicians often use diaries to assess situational cues. The assessment of situational triggers is closely related to the measurement of avoidance behavior, as people with anxiety disorders typically avoid the situations that trigger their fear. The issue of situational avoidance will be discussed later in this article.

Interoceptive cues. One of the most important constructs to emerge from the past 25 years of research on anxiety disorders is the notion of interoceptive anxiety, which encompasses constructs such as *anxiety sensitivity* (Taylor, 1999) or *fear of fear* (Goldstein & Chambless, 1978). This construct refers to the tendency to experience anxiety over the sensations normally associated with fear and physical arousal. It is both a risk factor for the development of panic disorder (Schmidt, Lerew, & Jackson, 1999) and a target in cognitive–behavioral treatments for PDA (e.g., Craske & Barlow, 2001). In addition, interoceptive anxiety occurs in varying degrees across the anxiety disorders (Chambless & Gracely, 1989; Taylor, Koch, & McNally, 1992). In addition to fearing specific objects and situations, individuals with SAD, PTSD, and certain specific phobias (e.g., fears of heights, driving, enclosed places) often report anxiety over their physical reactions when exposed to feared situations.

Measurement of the interoceptive cues that trigger anxiety and fear typically includes either the Anxiety Sensitivity Index (Peterson & Reiss, 1993) or the Body Sensations Questionnaire (Chambless, Caputo, Bright, & Gallagher, 1984), both of which measure anxiety over experiencing particular physical sensations. Scales such as these provide useful information for deciding whether to include treatment strategies (e.g., interoceptive exposure) to target the fear of physical symptoms. These measures are also useful for assessing treatment outcome, particularly for individuals with PDA. Interoceptive cues can also be assessed in the office using various exercises (e.g., hyperventilation) designed to induce bodily sensations (Antony, Roth, Liss, & Swinson, 2004).

Cognitive cues. For most of the anxiety disorders, cognitive features (e.g., beliefs, expectations, assumptions) are believed to play a role in triggering anxiety and fear. In fact, comprehensive cognitive models have been developed for most of the anxiety disorders (e.g., D. M. Clark, 1988; D. M. Clark & Wells, 1995; Ehlers & Clark, 2000; Salkovskis, 1998). In OCD, anxiety triggers may include obsessional thoughts (e.g., "I am going to stab my child"). Triggers in phobic disorders (e.g., social anxiety disorder, specific phobias) often include anticipating exposure to a feared object or situation and all of the anxious predictions that accompany such exposure. Fear triggers in PTSD may include traumatic memories and beliefs about situations that are perceived as dangerous.

Evidence-based protocols for PDA (Craske & Barlow, 2001), SAD (Turk, Heimberg, & Hope, 2001), GAD (Brown, O'Leary, & Barlow, 2001), and PTSD (Resick & Calhoun, 2001) all include cognitive restructuring as a component. In addition, emerging evidence suggests that cognitive therapy may also be useful in the treatment of OCD (McLean et al., 2001). Therefore, it is important to be able to identify cognitive content of anxiety in cases in which psychological treatments are likely to be used. Such content is often assessed using monitoring diaries and informal interviewing during the course of cognitive restructuring. In addition, there are scales designed specifically for assessing cognitive aspects of each disorder, including PDA, Agoraphobic Cognitions Questionnaire (Chambless et al., 1984); OCD, Obsessive Beliefs Questionnaire (Obsessive Compulsive Cognitions Working Group, 2003); GAD, Worry Domains Questionnaire (Tallis, Eysenck, & Mathews, 1992); SAD, Social Thoughts and Beliefs Questionnaire (Turner,

Johnson, Beidel, Heiser, & Lydiard, 2003); PTSD, Posttraumatic Cognitions Inventory (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999).

Finally, researchers and clinicians are beginning to recognize the importance of targeting maladaptive metacognitions (e.g., anxious beliefs about obsessions, positive and negative beliefs about worry) when treating certain anxiety disorders (Wells, 1997, 2000). A number of assessment scales have been developed to assess content of metacognitions, including the Interpretation of Intrusions Inventory (Obsessive Compulsive Cognitions Working Group, 2003) and the Meta-Cognitive Beliefs Questionnaire (D. A. Clark, Purdon, & Wang, 2003), both used in the assessment of OCD, as well as the Consequences of Worrying Scale (Davey, Tallis, & Capuzzo, 1996), which may be useful for assessing individuals with GAD.

Avoidance Behaviors

As reviewed earlier, avoidance of situations and objects that trigger fear (e.g., driving in the case of panic disorder with agoraphobia, high places in the case of specific phobia of heights, contaminated objects in the case of OCD) is common across the anxiety disorders. Avoidance of internal experiences (sometimes referred to as *experiential avoidance*) is also a common feature of anxiety disorders. For example, individuals with panic disorder tend to avoid activities that trigger increased arousal or increased awareness of arousal. Individuals with PTSD try to avoid experiencing traumatic memories, and individuals with OCD may suppress obsessions with aggressive, religious, or sexual content.

Treatment of anxiety disorders almost always includes exposure to feared objects, situations, thoughts, and sensations. Therefore, evidence-based assessment should measure the individual's patterns of avoidance, including situational avoidance, cognitive avoidance, and interoceptive avoidance. In addition to providing necessary information for behavioral treatment planning, accurate measurement of a patient's avoidance patterns can also aid in the measurement of treatment outcome. In many cases, it is the avoidance of feared situations that leads to the most functional impairment in anxiety disorders. Reductions in avoidance are usually a good indicator of improvement.

Avoidance patterns are often measured using behavioral diaries, unstructured interviews, and behavioral approach tests, none of which have been subjected to extensive empirical investigation. In addition, there are a number of self-report and clinician-administered scales for measuring avoidance, particularly for PDA (e.g., Mobility Inventory for Agoraphobia; Chambless et al., 1985), SAD (for a review, see Orsillo, 2001), and specific phobias (for a review, see Antony, 2001). Most of these scales have been subjected to basic psychometric investigations and appear to be reliable and valid based on a number of indices.

Compulsions and Overprotective Behaviors

Although compulsions are most often thought of in the context of OCD, compulsion-like behaviors are also characteristic of other anxiety disorders. Individuals with specific phobias of storms may repeatedly watch weather reports, individuals with PDA may repeatedly check their pulse, and individuals with GAD may check to protect themselves from falling victim to some feared outcome (e.g., Schut, Castonguay, & Borkovec, 2001). In fact, most of the anxiety disorders are associated with various overprotective and safety behaviors designed to protect the individual from possible threat (e.g., Wells et al., 1995).

Exposure-based treatments for anxiety disorders typically include prevention of compulsive rituals, overreliance on safety cues, and overprotective behaviors. Therefore, the ability to accurately assess these behaviors is essential. Most OCD measures (e.g., the Yale-Brown Obsessive Compulsive Scale, Goodman, Price, Rasmussen, Mazure, Delgado, et al., 1989; Goodman, Price, Rasmussen, Mazure, Fleischmann, et al., 1989) assess for the presence of compulsive rituals. However, there are currently few standard assessments for measuring the presence of overprotective behaviors in other anxiety disorders, leaving clinicians no choice but to use other methods (e.g., diaries, unstructured interviews) to assess these symptoms.

Physical Symptoms and Responses

Understanding a patient's physical responses when feeling anxious or frightened can help in the selection of appropriate treatment strategies. For example, individuals with panic disorder who experience particular types of symptoms during their panic attacks may benefit more from exposure to those particular symptoms than from exposure to other symptoms. Similarly, individuals with specific phobias of blood, injury, and injection who have a history of fainting in the feared situation are particularly likely to benefit from treatment with applied muscle tension, which combines exposure to phobic cues with muscle tension exercises that raise the individual's blood pressure and prevent fainting (Öst & Sterner, 1987). About 70% of individuals with blood phobias and 56% of individuals with needle phobias report a history of fainting in the situations they fear (Öst, 1992). Assessment of these conditions should always include questions about fainting.

Skills Deficits

Individuals with anxiety disorders may have skills deficits that impact treatment. For example, some people with SAD appear to have impairment in social skills (e.g., Fydrich, Chambless, Perry, Buergener, & Beazley, 1998; Smari, Bjarnadottir, & Bragadottir, 1998; Spence, Donovan, & Brechman-Toussaint, 1999), and some people with specific phobias of driving may lack adequate driving skills, particularly if they have avoided driving for many years. What is not known is whether such skills deficits have a negative impact on treatment. If they do, then developing ways to accurately assess relevant skills deficits should help to select appropriate treatments. Skills deficits may also be an appropriate target for measuring treatment outcome in some cases.

Associated Distress and Functional Impairment

For years, treatment outcome research in the area of anxiety disorders has focused on measuring change in symptom severity, paying little attention to whether treatment improves associated distress, functional impairment, and quality of life. Paralleling changes in other areas of medical research, anxiety disorders researchers have begun to measure the impact of treatment on these broader areas of functioning. In other words, they have become more interested in whether treatment actually makes a difference in their patient's lives. There are no assessment tools designed specifically to assess distress, functional impairment, and

quality of life in people with anxiety disorders, though a number of more general scales have been used to measure these constructs in this population (e.g., Antony, Roth, Swinson, Huta, & Devins, 1998; Mendlowicz & Stein, 2000; Quilty, van Ameringen, Mancini, Oakman, & Farvolden, 2003). Unfortunately, little is known about the relationship between scores on these scales and more objective indices of impairment (e.g., missed days at work, relationship impairment) in people with anxiety disorders. For example, Antony et al. (1998) found that individuals with PDA, OCD, and SAD reported higher levels of functional impairment than did people with serious medical conditions, including end-stage renal disease and multiple sclerosis. Whether this finding reflects the true level of functional impairment in anxiety disorders or that anxious patients exhibit negative biases in their reporting of impairment relative to individuals with medical illnesses is unknown.

Development and Course of the Problem

Little is known about the relationship between the way an anxiety disorder develops and the impact on the course and treatment of the disorder. A limited amount of research on this topic has failed to find a relationship between the manner of onset (e.g., traumatic experience vs. nontraumatic onset) and either the severity of symptoms (Öst & Hugdahl, 1983) or the outcome of treatment (Öst, 1985). Still, understanding the development of a problem and the context in which it began may be useful. For example, some studies have found an earlier age of onset to be predictive of poorer outcome following medication treatment of OCD (Ackerman, Greenland, Bystritsky, Morgenstern, & Katz, 1994; Erzegovesi et al., 2001) and SAD (Van Ameringen, Mancini, & Streiner, 1993). In addition, understanding the context in which a fear began is useful for treatment planning (e.g., in PTSD, planning imaginal exposure practices requires having a detailed description of the traumatic event that initially triggered the condition).

Understanding the course of the disorder is also important, particularly for evaluating the outcome of treatment. For example, a remission of symptoms following brief treatment may be less impressive in the case of a patient whose symptoms fluctuate naturally over time than for a patient who has symptoms continuously without fluctuations in severity. At this time, there are no evidence-based measures for assessing either the development or course of an anxiety disorder, and clinicians typically rely on interviews or questionnaires with undetermined psychometric properties.

Treatment History

Assessment of treatment history is relevant to treatment planning for anxiety disorders. For example, treatments that have worked in the past may be the most likely treatments to be effective in the future. Similarly, past treatment failures may provide useful information about what not to try when treating a particular patient. In cases in which past treatment attempts were not successful, it may be important to identify reasons for nonresponse. For example, treatment noncompliance is a predictor of negative outcome following psychological treatment (De Araujo, Ito, & Marks, 1996; Edelman & Chambless, 1993, 1995; Woods, Chambless, & Steketee, 2002). Therefore, it may be useful to know whether compliance issues may have sabotaged previous treatment attempts. The research on outcome predictors in anxiety is not very well developed, and very little is known about the effects of previous treatment on outcome. Furthermore, there are currently no evidence-based ways to measure previous treatment attempts.

Environmental and Family Factors

A number of environmental variables have an impact on the development, maintenance, and treatment outcome for individuals suffering from anxiety disorders. From a behavioral perspective, patterns of reinforcement from a person's environment (e.g., encouragement from one's employer for engaging in perfectionistic behaviors, attention and support from others for expressing feelings of anxiety) are thought to maintain anxiety symptoms over time, although there is almost no research investigating this assumption in anxious patients, and there are no evidence-based measures for assessing environmental contingencies in this context.

Most work in the area of environmental factors has focused on the effects of the family. For example, accommodation to a patient's symptoms is common in families of people with OCD (Calvocoressi et al., 1995), and family accommodation seems to be a negative predictor of outcome in this population (see Steketee & Pruyn, 1998). Also, expressed emotion (e.g., hostility, emotional overinvolvement) among family members predicts a more negative outcome in PDA (Chambless & Steketee, 1999) and a greater probability of relapse in OCD (Steketee, 1993). In addition, relationship difficulties may be predictive of relapse following behavioral treatment for certain anxiety disorders (Bland & Hallam, 1981). Although there are numerous family and couples measures available, many of them have not been properly validated in anxiety disorders samples. In addition, those who work in the area of anxiety disorders often fail to adequately assess these variables.

Medical and Health Issues

A variety of medical conditions can trigger symptoms that mimic those of anxiety disorders. For example, panic-like symptoms can be triggered by thyroid abnormalities, cardiac disease, or respiratory conditions. Similarly, in rare cases, OCD symptoms can be triggered by brain tumors or by streptococcal infection.

Even if the person is found to have an anxiety disorder, medical issues may still impact treatment. For example, individuals with injection phobias may be difficult to treat with exposure-based treatments if they have particularly small or inaccessible veins in their arms, making it difficult or painful to have blood taken. Similarly, a person with panic disorder who also suffers from heart disease may need to be treated differently than someone who is medically healthy. Although evidence-based assessment of such medical conditions is outside of the scope of practice for most mental health practitioners, it is important that anxious patients receive a proper medical workup before their anxiety is diagnosed and treated.

Associated Problems and Comorbidity

It is important to obtain accurate information about any additional problems that may impact the course or treatment of an individual's anxiety disorder. For example, chronic life stress

appears to interfere with outcome following treatment for PDA (Chambless & Steketee, 1999; Wade, Monroe, & Michelson, 1993). Similarly, the presence of comorbid mood disorders or personality disorders have been found to impact negatively on treatment of OCD, though not in all studies (see Foa, Franklin, & Kozak, 1998). Understanding the context in which an anxiety disorder occurs can help in the selection of appropriate treatment strategies and in the anticipation of possible obstacles that may arise during the course of treatment.

In addition to information on comorbid diagnoses or problems, it seems important to assess general negative affect. As discussed earlier, this construct is useful for understanding comorbidity among mood and anxiety disorders. Examples of useful scales include the Positive and Negative Affect Scales (PANAS; Watson, Clark, & Tellegen, 1988) and the Beck Depression Inventory–II (Beck, Steer, & Brown, 1996).

Summary

This section reviewed some of the most important domains for which evidence-based assessment procedures are needed in the area of anxiety disorders, including diagnostic features, anxiety cues, avoidance behaviors, compulsions and overprotective behaviors, physical symptoms and responses, skills deficits, distress and functional impairment, development and course of the problem, treatment history, family factors, medical and health issues, associated problems and comorbidity, and degree of insight. For many of these variables, standard measures exist, whereas for others, clinicians continue to rely on unstructured interviews or other nonstandarized measures. Even in cases in which standard measures exist, they are often based on only limited psychometric investigation.

Obstacles for Identifying and Disseminating Evidence-Based Assessment Procedures

Thus far, this article has reviewed some of the main features of evidence-based assessment for anxiety disorders, as well as the domains that should be targeted. This section discusses some obstacles in the identification and dissemination of evidence-based assessment procedures. The process of establishing and disseminating evidence-based assessment protocols for anxiety disorders will be much more difficult than similar efforts were for the establishment of empirically supported treatments. Below are some reasons why this is the case.

> The APA Division 12 Task Force identified 6 well-established treatments for anxiety disorders and an additional 13 probably efficacious treatments. In contrast, Antony et al. (2001) listed more than 200 anxiety-related assessment instruments, most of which have established psychometric properties. In addition, many new scales are published each year, which will make it very difficult to evaluate each one.

> Treatment essentially has one purpose (to alleviate symptoms). In contrast, assessment has many different purposes, which makes the task of identifying evidence-based assessment procedures much more complex than the task of identifying evidence-based treatments. Labeling a measure or procedure as evidence-based begs the question, "For whom and for what purpose is the measure empirically supported?"

> Methods of evaluating assessment tools (e.g., exploratory and confirmatory factor analysis, discriminant function analysis, item analysis) are more difficult to understand than methods used to evaluate the efficacy of treatments. Therefore, it will likely be more difficult for consumers of the research to understand which assessment procedures are evidence-based and which are not.

> Methodology for research on assessment instruments varies widely with respect to the sample (clinical characteristics, recruitment method, ethnic composition, age) and many other factors. Also, results (e.g., factor structure, validity) vary considerably across studies, making it difficult to determine whether certain scales are useful.

> Different ethnic groups often respond differently to measures (e.g., Hishinuma et al., 2000; Joneis, Turkheimer, & Oltmanns, 2000), making it difficult to establish psychometrically sound measures that work across ethnic groups.

> There are currently no agreed upon cutoffs for coefficients reflecting reliability and validity that can be used to establish whether a particular scale is evidence-based.

> Establishing validity depends on comparing the instrument with other measures that often contain similar items and that themselves may or may not be valid. Similarly, measuring the validity of diagnostic instruments assumes that the diagnostic criteria that they are designed to measure are valid.

> Unlike ESTs, assessment tools are rarely used on their own and are generally recommended as part of a broad, ideally multimodal, assessment battery. Data collected using different assessment modalities are often contradictory. In cases in which results are contradictory, there are no clear guidelines for deciding whether some criteria for evaluation are more important than others.

> Just as professionals have been reluctant to give up using treatment procedures that are not empirically supported, they may be reluctant to give up using assessment procedures that are popular but not evidence-based, particularly if they have invested a great deal of time and money to purchase and obtain training in using these procedures.

> Any criteria that are developed for identifying evidence-based assessment procedures will have to deal with issues of bias, reactivity, and other threats to validity.

> If evidence-based procedures for assessment can be specified, there will remain a need to develop strategies for disseminating information about empirically supported assessments to psychologists (e.g., undergraduate and graduate texts, graduate training programs, internships, continuing education), nonpsychologists (e.g., physicians, social workers) who use assessment instruments, and the public.

Although the above-noted obstacles are not simple to overcome, there are a number of ways to begin this process. For example, it would be beneficial to initiate a series of consensus conferences (or other methods of obtaining expert consensus) to establish the core domains relevant in anxiety assessment and the core measures to assess these domains. Guidelines based on expert consensus have already been published for the management and treatment of various psychiatric disorders (e.g., the American Psychiatric Association's Practice Guidelines, American Psychiatric Association, 2004; The Expert Consensus Guidelines for the treatment of OCD, March, Frances, Carpenter, & Kahn, 1997; and PTSD, Foa, Davidson, et al., 1999). Expert working groups like the Obsessive Compulsive Cognitions Working Group have also developed and tested measures of cognition in OCD (see Obsessive Compulsive

Table 1
Sample Assessment Protocol for Assessing Treatment Outcome in Panic Disorder With Agoraphobia

Domain	Assessment tools	Type of tool
Diagnostic features	Structured Clinical Interview for *DSM-IV* (SCID-IV; First et al., 1996, 1997)	Semistructured interview
	Anxiety Disorders Interview Schedule for *DSM-IV* (ADIS-IV; Di Nardo et al., 1994)	Semistructured interview
	Panic Attack Diary (Rapee et al., 1990)	Diary
Situational cues and avoidance behavior	Mobility Inventory for Agoraphobia (Chambless et al., 1985)	Self-report
	Diaries to record situational fear, avoidance, and safety behaviors	Diary
	Behavioral approach test	Behavioral assessment
Interoceptive cues	Anxiety Sensitivity Index (Peterson & Reiss, 1993)	Self-report
	Symptom induction exercises	Behavioral assessment
Cognitive features	Agoraphobic Cognitions Questionnaire (Chambless et al., 1984)	Self-report
Functional impairment	Illness Intrusiveness Rating Scale (Devins, 1994)	Self-report
	ADIS-IV or SCID-IV	Semistructured interview
	Sheehan Disability Scale (Sheehan, 1983)	Self-report
Comorbidity and problems	SCID-IV or ADIS-R	Semistructured interview
	Psychiatric Diagnostic Screening Questionnaire (Zimmerman & Mattia, 1999)	Self-report
	Beck Depression Inventory–II (Beck et al., 1996)	Self-report

Note. *DSM-IV* = *Diagnostic and Statistical Manual of Mental Disorders* (4th edition; American Psychiatric Association, 1994).

Cognitions Working Group, 1997, 2003). Establishing a consortium on anxiety assessment, in general, would foster the development and validation of empirically supported assessment instruments and protocols, which could then serve as gold standards against which additional measures could be compared. Once core domains and instruments are identified, this information needs to be made available not only for practicing researchers and clinicians (e.g., through special issues of journals, publication of expert consensus guidelines), but also early in professional training (e.g., in graduate training programs).

Efforts should also be made to improve the methodologies and statistics used to develop and test assessment instruments and protocols. Currently, most reviews of assessment measures are qualitative, simply summarizing various psychometric evaluations for an instrument (e.g., Antony et al., 2001). Quantitative reviews of measures, akin to meta-analyses of treatment outcome studies, would be more useful in evaluating the value of a particular instrument or protocol across a range of studies (e.g., Beck, Steer, & Garbin, 1988). Similarly, we need to encourage large scale, well-funded studies of assessment instruments that use appropriate control groups. When reporting the results of such studies, the onus should be on researchers to carefully describe the nature of their sample and the purpose of the assessment so that appropriate comparisons with other studies can be made and to ensure that this research is digestible for a broad audience.

As an illustration, an example of what an evidence-based protocol for measuring treatment outcome in panic disorder with agoraphobia might look like is provided in Table 1.

Conclusion

Developing criteria for identifying and disseminating empirically supported treatments was a challenging process, and the resulting lists of empirically supported interventions have generated much debate and controversy. Although there is little disagreement that those who suffer from mental health problems should receive treatments that work, there is disagreement about what those treatments should be. The EST Task Forces have been accused of being biased in their selection of empirically supported treatments. Criticisms have included the fact that 15 of the 16 treatments defined as well established come from a cognitive or behavioral orientation, and all but five of the probably efficacious treatments can be considered forms of cognitive or behavior therapy. In developing criteria for identifying evidence-based assessment procedures, there are a number of mistakes that should be avoided. First, criteria should be derived by practitioners from various theoretical orientations. Further, not only do individual assessment tools need to undergo rigorous psychometric evaluation, but also the validity of combining these individual tools into assessment protocols should be examined. In addition, a concerted plan for disseminating the assessment procedures is important to dispel myths about the instruments and about the criteria used to evaluate them. Given the frequency with which new assessment tools are developed, any lists of evidence-based assessment tools will need to be continually updated—even more frequently than the list of ESTs has been. Finally, a warning—the EST task forces were criticized for the list being incomplete. Such criticisms are likely to be even greater for a list of evidence-based assessment tools.

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